

Poverty Profile in Lao PDR

Poverty Report for the Lao Consumption and Expenditure Survey 2012-2013



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Expenditure Survey, 2012–2013

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Foreword

The Lao Statistics Bureau (LSB) has conducted the Lao Expenditure and Consumption Survey (LECS) at 5 years intervals since 1992/93. The fifth and most recent round (LECS 5) was implemented between April 2012 and March 2013 with full funding from the Government of Lao PDR. The objective of the surveys is to assess living standards of the population and generate necessary data for socio-economic planning. The LECS survey is also the source of official national poverty statistics in the country hence it provides critical information for monitoring national progress on poverty reduction, identifying the characteristics of the poor and vulnerable groups and ultimately informing government policies for eradicating poverty.

This report is a first presentation of these poverty statistics. It was produced as a joint collaborative effort between the Lao Statistics Bureau and the World Bank – a collaboration motivated by the need to strengthen poverty monitoring in order to assess progress and contribute to evidence based policy making as the government formulates the medium term development plan. The data analysis and report writing were provided through the World Bank's technical assistance to the LSB, which was supported with funding from the Australian Government, Department of Foreign Affairs and Trade (DFAT).

Using the LECS 5 and the preceding two rounds (i.e. LECS 3 conducted in 2002/3 and LECS 4 conducted in 2007/8), the report presents an overview of poverty in Lao PDR over the past decade. It assesses the current levels of poverty, changes over the five year period between 2007/8 and 2012/13, as well as changes over the 10 year period going back to the 2002/3 survey. It provides an analysis of the spatial pattern of poverty and describes in detail the profile of the poor, presenting the association between poverty and household characteristics such as the level of education, economic activities, ethnicity and gender. It further describes changes in living conditions in general, analyzing changes in household possession of assets, type of housing, access to amenities and progress in human development indicators like enrolment

and literacy rates. The report thus provides a basic understanding of the poverty situation in the country.

The report comes at a crucial time for Lao PDR. The government is currently in the process of formulating the 8th National Socio-Economic Development Plan, Strategy 2025 and Vision 2030. Reducing poverty and fostering inclusive growth is one of the envisaged pillars of the national plan. The analysis provided here not only presents a benchmark for monitoring progress going forward, but raises key policy questions and points to key areas that policy should focus on in order to achieve the stated goals of reducing poverty and fostering inclusive growth. The analysis makes clear that more needs to be done to ensure the benefits of economic growth are shared widely by ordinary people to lead to a faster rate of poverty reduction, that even when households move out of poverty, they need to be protected from falling back into poverty as many remain vulnerable and are at high risk of falling back into poverty and that households face multiple deprivations such that equal attention needs to be paid to both monetary poverty and other dimensions of human welfare.

We believe that findings of this report will provide useful insights to policy and decision makers, but would also emphasize that this report is a first and significant step towards a deeper understanding of the poverty situation in Lao PDR. The report provides a foundation for further investigation of factors driving poverty in the country and the underlying factors behind the observed patterns and trends, in order to inform policies on the options and pathways of lifting people out of poverty.

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The Lao Expenditure and Consumption Survey 2012/13 (LECS 5), was implemented by the Lao Statistics Bureau. I would like to thank all staff in the central and provincial offices who implemented this survey and further thank the sample communities, village chiefs and households, for their cooperation throughout the time of the survey.

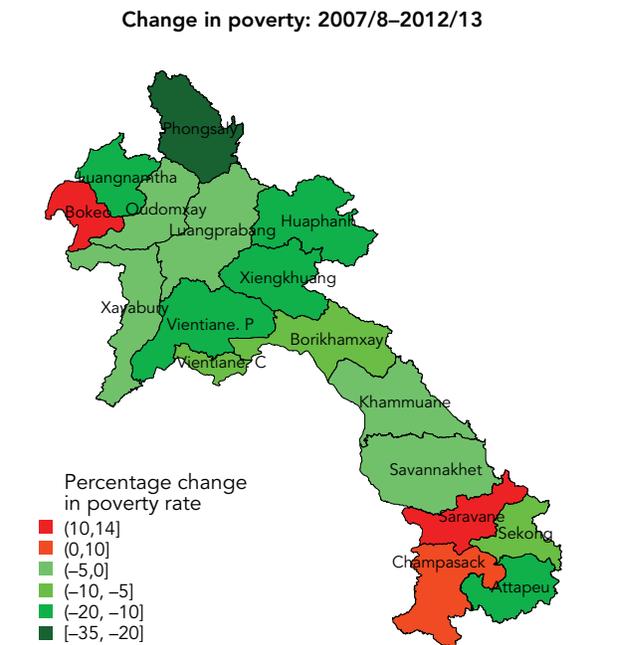
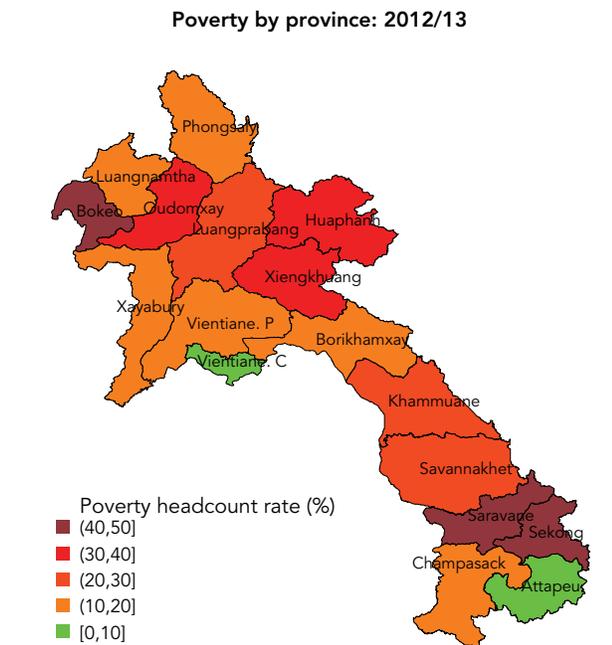
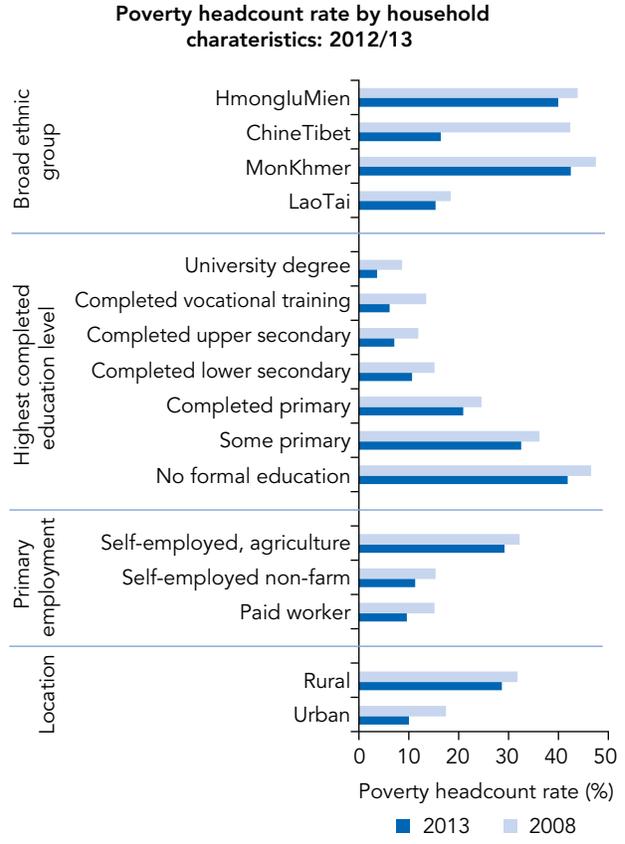
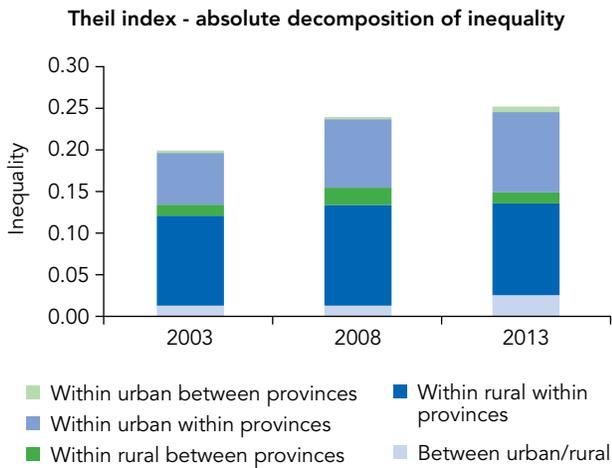
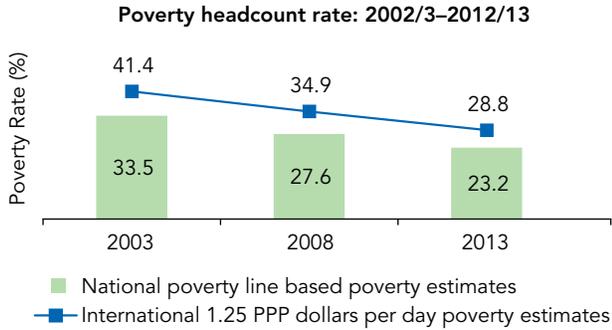
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It is my hope that findings presented in this report will help decision makers and other users.

Dr. Samaychanh Boupna
Head of Lao Statistics Bureau

Snapshot of poverty in Lao PDR



Overview of key findings

Poverty continues to decline in Lao People's Democratic Republic (PDR). Recent estimates from the Lao Expenditure and Consumption Survey carried out in 2012/13 (LECS 5) show that the national poverty headcount rate was 23.24 percent in 2012/13. Thus poverty has fallen by 4.3 percentage points from 27.56 percent in 2007/8, and indeed poverty has fallen in each of the five year periods since the first LECS survey was conducted in 1992/3. Overall, poverty halved from 46 percent at the time of the first LECS survey.

Improvements in other non-monetary indicators of household welfare such as household ownership of assets, housing living conditions and access to services provide further evidence of continued improvement in welfare in Lao PDR. Household ownership of assets increased significantly even among poor households – 56 percent of poor households now own a mobile phone compared to 21 percent in 2007/8 for example. More households are living in houses built with bricks/concrete (41 percent in 2012/13 compared to 28 percent in 2007/8) and houses with floor tiles or cement floors compared to 2007/8. Access to improved toilets and electricity increased significantly especially in rural areas, while net enrollment in lower secondary school increased among both the poor (by 8 percentage points) and the non-poor (by 12 percentage points). Nevertheless differences in access remain large between the poor and the non-poor.

The rate of poverty reduction was slow compared to the rate of economic growth as the high rate of GDP growth in Lao PDR did not translate into a proportionately high rate of poverty reduction. Indeed, poverty declined by just 0.47 percent for every 1 percent increase in GDP per capita between 2007/8 and 2012/13 – quite low compared to surrounding countries like Cambodia and Vietnam. Part of the explanation is that high economic growth did not translate into high household consumption growth in general. Annual growth in

average consumption (at 2 percent) lagged behind the rate of per capita GDP growth by 4 percentage points. Even then, the little growth in consumption benefited the non-poor more than the poor. Consumption among the bottom 40 percent grew at 1.3 percent compared to 2.4 percent among the richest 20 percent.

The pace of poverty reduction was further slowed by a significant number of previously non-poor households falling back into poverty – a manifestation of the high vulnerability faced by most households in Lao PDR. Poverty increased in three provinces (Saravane, Bokeo and Champasack) which had previously experienced large declines in poverty between 2002/3 and 2007/8. Similarly, poverty increased in lowland areas, mainly in areas bordering Cambodia, and declined in uplands areas between 2007/8 and 2012/13, whereas the opposite trend was observed between 2002/3 and 2007/8. These examples show that even in areas which have achieved impressive poverty reduction, gains can easily be overturned in later periods if the households or the region experience shocks or setbacks. This vulnerability slows the pace of poverty reduction. Poverty would have declined by a further 2.2 percentage points (or 51 percent more) if poverty levels in Saravane, Bokeo and Champasack had remained the same as in 2007/8 for example.

Improvements in welfare in the country as a whole mask large differences in both the level of poverty and the rate of progress across regions and different socio-economic groups. Poverty remains substantially higher in rural areas where 28.6 percent of the population live in poverty, compared to 10.0 percent in urban areas. The gap grew over the past five years as poverty declined faster in urban areas. Now 87.6 percent of all poor people in Lao PDR resides in rural areas compared to 81.9 percent before. Vientiane remains the wealthiest region with a poverty rate of 5.9 percent, and has in fact pulled further away from the other regions, contributing to

the widening gap between rural and urban areas. Yet poverty is as high as 50 percent in Saravane and above 40 percent in Bokeo (44.4 percent) and Sekong (42.7 percent). Poverty fell in the other regions of the country, with a particularly impressive reduction in the North, but rose overall in the South, almost reversing the rapid drop that took place in this region between 2002/3 and 2007/8.

Poverty is higher among ethnic minorities in general, with the non LaoTai contributing to 55 percent of all poor people despite being only a third of the population in Lao PDR. The Chine-Tibet ethnic group was an exception. They experienced a rapid decline in poverty in recent years. Poverty is also higher among households headed by persons with lower levels of education, a disproportionate share of them ethnic minorities, and those who primarily depend on agriculture as a source of living or are unemployed. Unlike in the preceding period, rural agricultural households had a slower rate of poverty reduction than urban households and paid wage workers between 2007/8 and 2012/13.

Poverty in Lao PDR is geographically concentrated but not necessarily in provinces with the highest poverty rates. The number of poor people in Savannakhet, Saravane, Champasack, Luangprabang and Huaphanh together make up to 54.7 percent of the poor nationwide. The share of the poor of the first three is close to 40 percent and has increased since 2007/8. The composition of this list shows the poor are not concentrated only in provinces with high poverty rates, but those with a relatively large population share too. By virtue of its large population, Savannakhet accounts for 17 percent of all poor individuals despite its moderate poverty rate.

The same applies to Champasack and Luangprabang. Saravane has a high poverty rate and a moderate population share as a result it accounts for 13 percent of the poor. By contrast, Bokeo has a poverty rate of 44.4 percent, the second highest in Lao PDR, but accounts for just 5 percent of the poor because its population is small – amounting to just 2.7 percent of the total population of Lao PDR.

The variation in progress across locations and socio-economic groups led to widening inequality between groups not fully reflected in aggregate indicators of inequality. The Gini coefficient only marginally increased from 35.0 in 2007/8 to 36.2 in 2012/13, but as a result of a slowdown of growth in incomes of the non-poor in rural areas rather than faster growth of incomes among the poor. This offset rising inequality in urban areas where growth was high but accrued mainly to the non-poor. Inequality in Lao PDR is thus increasingly characterized by rising inequality within urban areas and between rural and urban areas.

First priority districts saw the largest decline in poverty which suggests success of targeted poverty interventions. The poverty rate in first priority districts declined by 9.2 percentage points – from 43.5 percent in 2007/8 to 34.3 percent in 2012/13. This now equals the poverty rate among the second priority districts, although it is still double the poverty rate in non-priority districts. However their progress has been slow on human development indicators like secondary school enrollment for example. Thus even though progress in monetary poverty was made in first priority districts and previously lagging provinces in the North, they are lagging in other dimensions of welfare that drive poverty in the long term.

Introduction

The Lao Statistics Bureau (LSB) has conducted the Lao Expenditure and Consumption Survey (LECS) at 5 year intervals since 1992/93. The purpose of these surveys is to estimate expenditure and consumption of households as well as to gather information about economic activities, production, investment, access to services and other socio-economic issues. They are the main source of information for deriving nationally representative poverty estimates in Lao PDR. The fifth and most recent of these surveys (LECS 5) was conducted between April 2012 and March 2013. This report provides updated poverty statistics based on the LECS 5 data and, using these findings, describes trends and patterns in poverty over the past decade. Detailed findings on other socio-economic factors covered in the LECS 5 survey are provided in the LECS 5 survey report (LSB 2014) and hence will not be covered in this report.

Background to the LECS 5 survey

The LECS 5 is a nationally representative survey designed to generate representative poverty estimates at the national and provincial levels. The survey sample comprises 8,226 households, stratified by province and village type (urban, rural with road and rural without road). The distribution of households is presented in Table 1 below. Rural households comprise 73.2 percent of the sample and urban households make up the remaining 26.8 percent. The survey covered all 17 provinces in Lao PDR during 2012/13.¹

The sample was selected using a two stage sampling process. In the first stage, villages were randomly selected with probability in proportion to their population size. This first stage selection was undertaken prior to the implementation of the LECS 3 survey in 2002/3 when 540 villages were selected. These villages were subsequently revisited in LECS 4 (implemented in 2007/8) and then LECS 5. Some of the original 540 villages were merged as part of the

Government's village consolidation program, and as a result, the LECS 5 survey has 515 villages while the LECS 4 survey had 518.² The second stage of sampling involved the selection of 16 households for each of the 515 villages. Eight of these households were randomly selected from those households that had been included in the LECS 4 survey while the other half were randomly selected from the list of all households in the village. A similar procedure was done for LECS 4. The LECS has, in essence, been implemented as a rotating panel since 2002/3. This panel component is not exploited in this report, but will be utilized in subsequent detailed poverty analysis.

Data collection for the LECS 5 was carried out between April 2012 and March 2013—the same months as in LECS 4. The sample was randomly allocated to each month, with a roughly equal allocation per month for each province. For each household, data collection took place over a whole month, during which the household completed a diary capturing all household transactions in cash or in kind, including self-valuation of consumption of own produced items, in-kind receipts and the monetary value of all expenditures and incomes. The diary was filled in daily by household members, assisted as necessary by enumerators, who stayed in the village throughout the duration of the survey. The other modules were separately administered over different weeks of the month. While the diary was intended to be a 30 day diary in principle, in reality

¹ The Xaysomboun Special Region, which existed between 1994 and 2006, was included separately in the LECS1–3 surveys. In 2006 the Special Region was dissolved, with some districts being reassigned to Vientiane Province and others to Xiangkhuang. In December 2013, Xaysomboun was established as a new Province, which will be included in subsequent rounds of the LECS survey.

² Consolidated villages were retained in the sample wherever feasible. The population weights have been calculated taking into account the changes in village size brought about by village consolidation.

TABLE 1: Distribution of the LECS 5 sample

Province	Urban	Rural with road	Rural without road	Total
Vientiane Municipality	512	256	0	768
Phongsaly	48	208	112	368
Luangnamtha	79	240	48	367
Oudomxay	80	272	0	352
Bokeo	64	304	16	384
Luangprabang	112	320	112	544
Huaphanh	80	416	16	512
Xayabury	192	352	16	560
Xiengkhuang	111	270	16	397
Vientiane	256	336	0	592
Borikhamxay	64	272	32	368
Khammuane	112	432	0	544
Savannakhet	160	608	0	768
Saravane	64	502	0	566
Sekong	80	160	32	272
Champasack	144	320	112	576
Attapeu	48	208	32	288
Lao PDR	2,206	5,476	544	8,226

it was implemented over a month, implying that the number of diary days ranged between 28 and 31 depending on the month of the interview.

Estimation of poverty

A consumption based welfare measure is used to measure poverty following the cost of basic needs approach. The use of this approach is common practice in developing countries. While both consumption and income measurement have advantages as measures of welfare, consumption is seen as a better proxy of permanent income from a theoretical perspective, and is often preferred from a practical perspective, because income is difficult to measure in developing countries where own consumption of produce is common and the majority of people are in self-employment (Deaton and Zaidi, 2002).

The consumption aggregate includes consumed food items that are purchased from the market,

produced at home, received as gifts or eaten during meals in restaurants and hotels. Non-food consumption items comprise education expenses, medical expenses, clothing and footwear, housing fuel and utilities, transportation and communication, personal care, recreation, accommodation in hotels and lodges, alcohol and tobacco, expenses on traditional and cultural activities, household sundries and operating expenses and other miscellaneous items. Rent is excluded. However, some household durables are partly included in the aggregate. Following standard practice, the consumption aggregate excludes donations and gifts given by the household to other households in order to avoid double counting. The diary is the main source of information for measuring consumption and is supplemented by information from the durables purchase module (with a 12 month recall period). Following previous practice, self-valued consumption expenditures are used in generating own food consumption and in kind food expenditure, without further imputation or adjustment.

TABLE 2: Nominal poverty lines by year of survey, 2002/3–2012/13^a

	2002/3	2007/8	2012/13
National poverty line	92,959.6	159,611.9	203,613.6
Rural poverty line	88,460.9	153,628.1	196,412.8
Urban poverty line	108,041.1	174,386.2	221,391.1

^a The 2005 PPP exchange rate in 2012/13 is estimated at PPP\$1 to KIP 5925.3, while the average nominal exchange rate is USD1 to KIP 7972.9. This implies a national poverty line of PPP\$1.15 per person per day or USD0.85 per person.

Both the poverty line and consumption are expressed in per capita values. No equivalence scales are applied to adjust for different household needs based on their gender and age composition. The failure to use equivalence scales has its drawbacks, but it was applied to LECS 5 in order to retain consistency with previous LECS analysis. In addition, there are no credible adult equivalence parameters available for Lao PDR (Kakwani et al., 2002) and there is also little consensus on a consistent methodology for deriving equivalence scales (see Deaton and Mueller, 1986 or Deaton, 1997).

The poverty line used was established using data from the LECS 2 survey (implemented in 1997/98). This poverty line was derived to cater for the cost of 2100 calories per day per person (which defines the food poverty line) based on the consumption basket of a reference poor population. The cost of non-food consumption was calculated using the average ratio of food to total consumption among households with total consumption close to the food poverty line. The poverty lines were calculated first for urban Vientiane, using this reference food basket and the ratio of non-food consumption, at urban Vientiane prices. These food and non-food lines were then used as baselines to set poverty lines for the other regions of the country (Vientiane, North, Central and South, with a rural-urban disaggregation). They were adjusted to account for spatial price differences, using regional prices to estimate spatial price indices.

The poverty line has been held constant in real terms over time and across regions since LECS 2. This has been done using the cost of the food and non-food baskets to track the difference in the cost of living across time.³ Price indices are also used to account for differences in cost of living over the year

during which the LECS survey is carried out. The national poverty line is expressed as the weighted mean of the regional poverty lines. The national poverty line is estimated at Kip 203,613.6 in 2012/13. It is consistently lower for rural than for urban areas (see Table 2), reflecting a lower cost of living.

Three sources of price information were used in updating the poverty line from the LECS 4 level and adjusting for spatial variation in prices. The village price survey, which is conducted as part of the LECS survey, was the source of prices used for updating the non-food component of the poverty line, while the unit values from the diary were used for updating the food component of the poverty line, both for the spatial price adjustment within LECS 5 and for the adjustment of the base poverty line between LECS 4 and LECS 5. The CPI prices (for items in the poverty basket) for Vientiane Municipality were then used to adjust for price inflation across different months of the survey between 2012 and 2013. Annex 1 provides the detailed methodology used for updating the poverty line and deriving the consumption aggregate for LECS 5. This methodology is largely consistent with the methodology used in LECS 4 and other previous surveys (MPI 2010), thus poverty estimates presented in this report are comparable across surveys.

Organization of the report

The report starts with an overview of poverty and inequality estimates in Chapter 1, focusing on the

³ The spatial price indices are generated using same the food basket described above plus a non-food basket estimated using a comparable method.

trends in poverty and the distributional pattern of growth between 2002/3 and 2012/13. Chapter 2 then provides a description of the poverty profile by geographical and household characteristics, both in terms of the levels of poverty and its rate of change. Consumption patterns are presented in Chapter 3, and other socio-economic characteristics describing the living conditions of households are presented in Chapter 4, which is then followed by a chapter

detailing the conclusions that can be drawn from this initial poverty profile analysis. The annexes provide additional detail. Annex 1 provides a detailed technical explanation of the methodology for measuring poverty while Annex 2 presents sensitivity analysis for the poverty estimates including the confidence intervals of these estimates. Annex 3 provides additional tables and figures on poverty and inequality including other measures of poverty.

Chapter 1

Overview of poverty and inequality

Trends in poverty

The national poverty headcount rate was estimated at 23.24 percent in 2012/13. This represents a decline of 4.3 percentage points from 27.56 percent in 2007/8 (see Table 3). Both the depth of poverty and its severity declined, with the poverty gap coming down from 6.5 percent in 2007/8 to 5.5 percent in 2013, while the squared poverty gap declined from 2.3 to 1.9 over the same period. These results show that poverty continues to decline in Lao PDR, following declines over every survey period since the LECS was initiated in 1992/3. However, the rate of poverty reduction in the most recent period has been slower than the growth rate of per capita Gross Domestic Product (GDP), which on average, grew by 5.9 percent yearly over the same period. The pace of poverty reduction translates to a growth elasticity of poverty of around -0.47 between 2007/8 and 2012/13, meaning that for a 1 percent increase in per capita GDP, poverty fell by around 0.47 percent. This elasticity was lower than that recorded in previous periods. A 1 percent increase in GDP translated into a 0.59 percent decrease in poverty in the period between 2002/3 and 2007/8 and a decrease of 0.67 percent between 1997/8 and 2002/3.

Poverty remains higher in rural areas, with a poverty headcount rate of 28.6 percent, than in urban areas, which have a poverty headcount rate of

10.0 percent. The decline in poverty between 2007/8 and 2012/13 was slower in rural areas, making the gap in poverty rates more pronounced. The poverty rate in rural areas declined by 3.1 percentage points between 2007/8 and 2012/13 compared to a decline of 7.3 percentage points in urban areas over the same period. This contrasts with the preceding 5 year period (between 2002/3 and 2007/8) when poverty declined by almost 6 percentage points in rural areas, compared to 2.3 percentage points in urban areas. Overall, the rate of poverty reduction in urban areas was more than double the rate of poverty reduction in rural areas over the 10 year period between 2002/3 and 2012/13 (see Table 3).

Improvements in welfare have been higher in urban areas in general. For example, both the growth rates in median and mean consumption per capita in urban areas were more than double the growth rates in rural areas between 2007/8 and 2012/13 (see Table 4). The poverty dominance curves in Figure 1 show a substantial shift in the entire welfare distribution in urban areas, whereas the shift in the distribution in rural areas was insignificant for the most recent period. As a result of the differential welfare improvement, urban areas maintained their advantage over rural areas. Median consumption in rural areas, at Kip 270,966 per capita per month, is two thirds of median per capita consumption in urban areas (see Table 4), after adjusting for the lower cost of living in rural areas.

TABLE 3: Trends in poverty, 2002/3–2012/13

	Poverty Headcount Rate				Poverty Gap				Squared Poverty Gap			
	2003	2008	2013	Change*	2003	2008	2013	Change*	2003	2008	2013	Change*
Urban	19.7	17.4	10.0	-7.3	4.1	3.4	2.3	-1.1	1.3	1.1	0.8	-0.3
Rural	37.6	31.7	28.6	-3.1	9.2	7.7	6.8	-1.0	3.2	2.8	2.3	-0.5
Lao PDR	33.5	27.6	23.2	-4.3	8.0	6.5	5.5	-1.0	2.8	2.3	1.9	-0.4

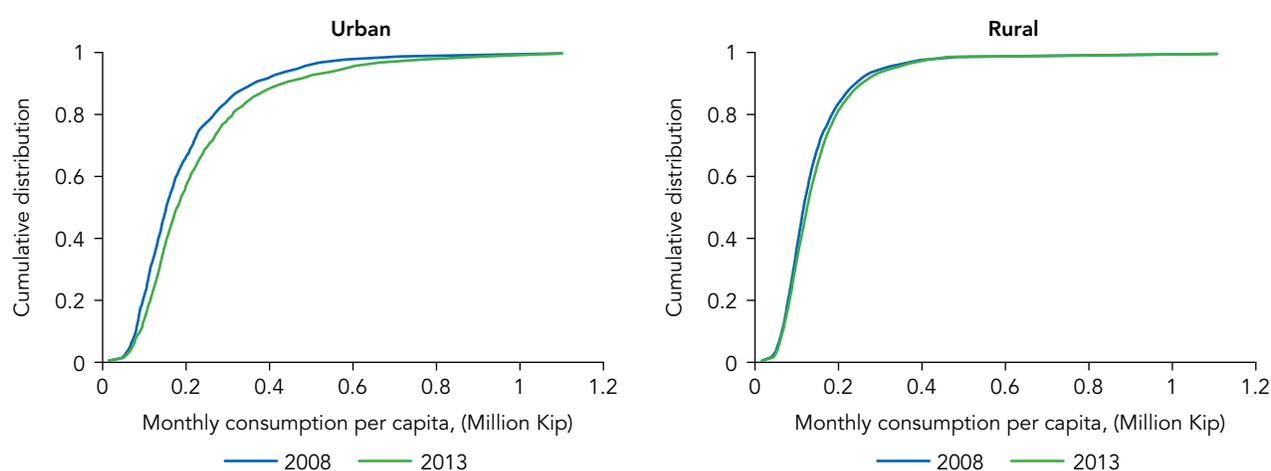
Sources: Authors' calculations from LECS 3–5.

*Notes: Changes are shown for the period between 2007/8 and 2012/13.

TABLE 4: Per capita consumption by rural-urban, 2012/13

Measure of average consumption	Nominal monthly consumption per capita: 2012/13			Annualized growth in real per capita consumption					
				2002/3–2007/8			2007/8–2012/13		
	Rural	Urban	Lao PDR	Rural	Urban	Lao PDR	Rural	Urban	Lao PDR
Median consumption	270,966	399,391	301,660	1.3	1.0	1.7	1.5	3.3	1.9
Mean consumption	323,079	588,549	399,610	2.3	1.8	2.6	1.0	3.7	2.0

Sources: Authors' calculations from LECS 4 and LECS 5.

FIGURE 1: Poverty dominance curves

Sources: Authors' calculations from LECS 4 and LECS 5.

Regional differences remain pronounced. Vientiane is the most prosperous region, with a poverty rate under 6 percent, whereas the poverty headcount rate in all other regions is above 20 percent (see Table 5). Vientiane is also the only region without a large rural-urban discrepancy. The rural poverty rate in Vientiane is barely distinguishable from the urban, whereas in all other regions of the country the rural poverty rate is more than double the urban rate. This discrepancy is most pronounced in the North. The urban poverty rate there is only 3 percentage points above the rate in urban Vientiane, while the rural poverty rate is over 20 percentage points higher than rural Vientiane.

The period between 2007/8 and 2012/13 saw pronounced poverty reduction in Vientiane region. This contrasts to the previous period, during which the decline in poverty in the capital city and

surrounding region was relatively modest. The northern and central regions also saw a faster decline than had taken place between 2002/3 and 2007/8. By contrast the southern region, which had benefitted from a particularly significant drop in poverty between 2002/3 and 2007/8, saw a significant rise in poverty affecting both rural and urban areas. This increase almost wiped out the poverty reduction that had been achieved in the previous period.

There is also wide variation in poverty across provinces (see Table 6). This variation largely corresponds to the regional picture, but there are some exceptions. Poverty is lowest in Vientiane Municipality, which had a poverty headcount rate of 5.9 percent, followed by Attapeu at 8.9 percent and Vientiane province at 12 percent. Saravane was the poorest province in 2012/13 with a poverty

TABLE 5: Regional trends in poverty, 2002/3–2012/13

Region	Poverty Headcount Rate				Poverty Gap				Squared Poverty Gap			
	2003	2008	2013	Change*	2003	2008	2013	Change*	2003	2008	2013	Change*
Lao PDR	33.5	27.6	23.2	-4.3	8.0	6.5	5.5	-1.0	2.8	2.3	1.9	-0.4
Vientiane	16.7	15.2	5.9	-9.3	3.4	3.4	1.5	-1.9	1.0	1.2	0.6	-0.7
North	37.9	32.5	25.8	-6.7	9.4	7.7	5.9	-1.8	3.3	2.7	1.9	-0.7
Central	35.4	29.8	23.3	-6.6	8.4	6.9	5.2	-1.7	3.0	2.5	1.7	-0.8
South	32.6	22.8	29.2	6.4	7.6	5.6	7.6	2.0	2.5	2.1	2.8	0.7
Urban												
Vientiane	15.6	15.3	5.5	-9.8	3.3	3.4	1.5	-1.9	1.0	1.3	0.6	-0.7
North	30.6	14.6	8.9	-5.7	6.7	2.8	1.7	-1.0	2.2	0.8	0.4	-0.4
Central	20.1	22.2	12.8	-9.4	3.8	4.3	3.1	-1.2	1.1	1.4	1.1	-0.3
South	12.8	11.3	16.1	4.8	2.7	2.0	3.5	1.5	1.0	0.5	1.1	0.6
Rural												
Vientiane	20.2	15.2	7.5	-7.6	3.8	3.4	1.5	-1.9	1.1	1.2	0.4	-0.8
North	39.1	36.5	29.9	-6.6	9.9	8.8	6.9	-1.9	3.5	3.1	2.3	-0.8
Central	39.0	33.5	26.9	-6.6	9.6	8.2	6.0	-2.2	3.4	3.0	2.0	-1.0
South	35.5	25.5	32.2	6.7	8.3	6.4	8.5	2.1	2.8	2.4	3.2	0.7

Sources: Authors' calculations from LECS 3-5.

*Notes: Changes are shown for the period between 2007/8 and 2012/13.

headcount rate of 49.8 percent, while Bokeo was the second poorest with a poverty headcount rate of 44.4 percent and Sekong the third poorest with a poverty headcount rate of 42.7 percent. Thus there is a gap of up to 44 percentage points between the poverty headcount rate of the least poor and the poorest provinces in Lao PDR.

Poverty reduction has been uneven across provinces too. Most provinces followed the predominant trend in their regions. The fastest decline in the poverty headcount rate took place in the North, with the reduction being greatest in Phongsaly (33.7 percentage points), Luangmatha (14.4 percentage points) and Huaphanh (11.3 percentage points). On the other hand, poverty increased in three provinces, two of which were in the South, namely Saravane, where poverty increased by 13.5 percentage points from 36.3 percent in 2007/8 to 49.8 percent in 2012/13, and Champasack with an increase of 9.9 percentage points from 10.0 percent in 2007/8 to 19.9 percent in 2012/13. Bokeo and

Attapeu were the major exceptions to the regional patterns. Against a backdrop of rapid poverty reduction in the northern part of the country, Bokeo saw an increase in poverty of almost 12 percentage points from 32.6 percent in 2007/8 to 44.4 percent in 2012/13. In Attapeu, poverty fell from above twenty to below ten percent, in contrast to a significant increase in poverty for the southern region as a whole. These provinces have small populations, so their impact on the regional trends were marginal.

While poverty declined overall, the pattern of decline highlights household vulnerability to shocks. Gains in areas that had previously done well were reversed in a number of cases. All three provinces where poverty increased had previously experienced significant declines in poverty between 2002/3 and 2007/8. The reversal in the trend in these provinces, even if it proves to be temporary, suggests that households and indeed entire areas are vulnerable to shocks that can push them back into poverty.

TABLE 6: Trends in poverty by province, 2002/3–2012/13

Province	Poverty headcount rate				Poverty Gap				Squared Poverty Gap			
	2003	2008	2013	Change*	2003	2008	2013	Change*	2003	2008	2013	Change*
Vientiane Municipality	16.7	15.2	5.9	-9.3	3.4	3.4	1.5	-1.9	1.0	1.2	0.6	-0.7
North												
Phongsaly	50.8	46.0	12.3	-33.7	11.8	11.8	2.1	-9.7	4.0	4.2	0.5	-3.7
Luangnamtha	22.8	30.5	16.1	-14.4	4.1	6.1	2.5	-3.5	1.1	1.8	0.7	-1.2
Oudoumxyay	45.1	33.7	30.1	-3.6	10.8	8.6	6.4	-2.2	3.6	3.3	2.0	-1.3
Bokeo	21.1	32.6	44.4	11.8	5.3	7.9	11.6	3.7	1.9	2.8	4.2	1.4
Luangprabang	39.5	27.2	25.5	-1.7	10.4	5.5	5.3	-0.2	3.7	1.6	1.6	0.0
Huaphanh	51.5	50.5	39.2	-11.3	13.9	13.6	11.3	-2.3	5.2	4.9	4.3	-0.7
Xayabury	25.0	15.7	15.4	-0.2	5.8	3.0	2.9	-0.1	1.9	0.9	0.8	-0.1
Xaysomboun	30.6				7.1				2.6			
Central												
Xiengkhuang	41.6	42.0	31.9	-10.1	12.3	13.4	8.3	-5.1	5.5	6.0	3.0	-3.0
Vientiane Province	19.0	28.0	12.0	-16.0	3.4	6.2	1.8	-4.4	0.9	2.0	0.4	-1.7
Borikhamxay	28.7	21.5	16.4	-5.1	5.5	4.3	3.6	-0.6	1.5	1.3	1.2	-0.1
Khammuane	33.7	31.4	26.4	-5.0	7.7	6.7	6.8	0.1	2.6	2.2	2.5	0.2
Savannakhet	43.1	28.5	27.9	-0.6	10.5	6.1	6.1	0.0	3.6	2.1	2.0	-0.1
South												
Saravane	54.3	36.3	49.8	13.5	13.1	9.1	14.7	5.6	4.3	3.3	5.7	2.3
Sekong	41.8	51.8	42.7	-9.1	11.8	19.1	11.6	-7.5	4.7	9.3	5.0	-4.2
Champasack	18.4	10.0	19.9	9.9	3.6	1.6	4.2	2.7	1.1	0.4	1.4	1.0
Attapeu	44.0	24.6	8.9	-15.7	11.6	4.6	1.4	-3.2	4.1	1.3	0.3	-1.0
Lao PDR	33.5	27.6	23.2	-4.3	8.0	6.5	5.5	-1.0	2.8	2.3	1.9	-0.4

Sources: Authors' calculations from LECS 3–5.

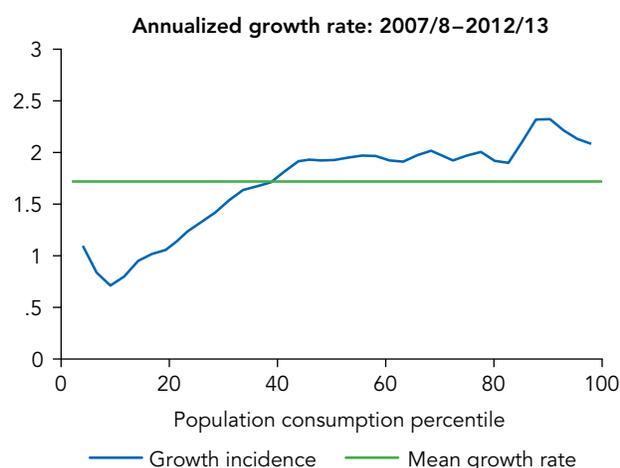
*Notes: Changes are shown for the period between 2007/8 and 2012/13.

The distributional pattern of consumption growth

Growth in the past decade was more favorable to the non-poor than the poor. Figure 2 shows that annualized growth rate of consumption was lower for lower percentiles of the consumption distribution (i.e. people living in households with lower consumption per capita) than for the higher consumption percentiles. We also see faster growth among the higher percentiles of the distribution when we look at the entire

period between 2002/3 and 2012/13 (Figure 3). Growth is pro-poor in relative terms when the welfare of the poor grow at a higher rate than the welfare of the non-poor (Ravallion, 2004). By this measure, the pattern of growth in consumption observed between 2002/3 and 2012/13 was not pro-poor.

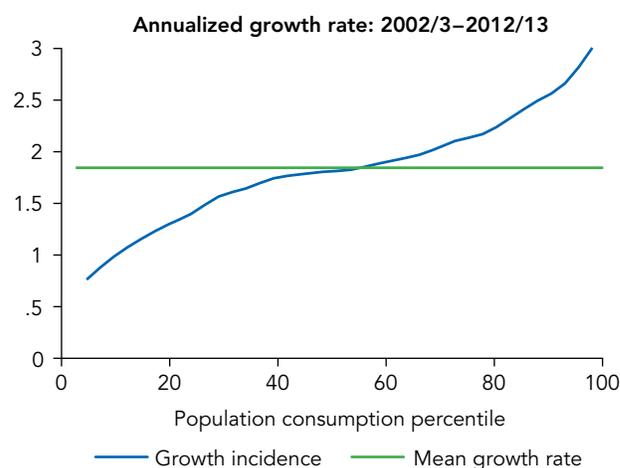
Consumption growth for the bottom 40 percent, particularly the poorest 20 percent, has been significantly lower than the mean over the past decade (see Figures 2 and 3). The mean annualized percentile growth rate was 1.7 percent while median per

FIGURE 2: Distributional patterns of growth (growth incidence curves), 2007/8–2012/13

Sources: Authors' calculations from LECS 4–5.

capita consumption grew at 1.9 percent per annum. However, average consumption among the poorest 20 percent grew by 1 percent per annum and average consumption among the bottom 40 percent by 1.3 percent, between 2007/8 and 2012/13. Meanwhile, average per capita consumption among the richest 20 percent grew by 2.4 percent (see Table 7). The difference in consumption growth between the poorest and richest quintiles is particularly larger in urban areas.

This uneven pattern of growth resulted in an increase in inequality between 2007/8 and 2012/13. The Gini coefficient, a commonly used measure of inequality, marginally increased from 35.0 in 2007/8

FIGURE 3: Distributional patterns of growth (growth incidence curves), 2002/3–2012/13

Sources: Authors' calculations from LECS 3–5.

to 36.2 in 2012/13. A similar increase is observed using other indicators (see Table 8). All these indicators show that inequality increased slightly and remains higher in urban than in rural areas. In the 2007/8 to 2012/13 period, the increase was driven by rising inequality in urban areas, while rural inequality remained flat. This contrasts with the previous period, during which inequality rose faster in rural than in urban areas.

Inequality in Laos is increasingly characterized by rising inequality within urban areas and a growing rural-urban gap. The Theil index of inequality, GE(1) in table 8, can be decomposed to show the contribution of inequality within subgroups and inequality

TABLE 7: Average consumption by consumption quintile, 2012/13

Quintile	Average nominal monthly consumption per capita (KIP): 2012/13			Annualized growth in real per capita consumption (%): 2007/8–2012/13		
	Lao PDR	Rural	Urban	Lao PDR	Rural	Urban
1st Quintile	148,710	140,042	193,046	1.0	0.9	2.6
2nd Quintile	227,105	208,005	300,385	1.5	0.9	3.1
3rd Quintile	301,966	272,118	401,211	1.9	1.4	3.2
4th Quintile	412,178	360,222	568,886	2.0	1.4	3.4
5th Quintile	877,429	693,563	1,230,142	2.4	0.7	4.3

Sources: Authors' calculations from LECS 4 and 5.

TABLE 8: Trends in inequality, 2002/3–2012/13

Location	Gini			GE(0)			GE(1)			GE(2)		
	2003	2008	2013	2003	2008	2013	2003	2008	2013	2003	2008	2013
Lao PDR	32.46	35.04	36.17	17.2	20.1	21.4	19.8	23.5	25.0	30.1	39.1	40.2
Urban	34.40	35.80	37.51	19.2	20.9	23.1	21.7	23.1	26.1	32.5	32.9	39.7
Rural	30.24	33.05	32.52	15.0	18.1	17.4	17.1	21.8	20.1	25.1	39.8	31.3

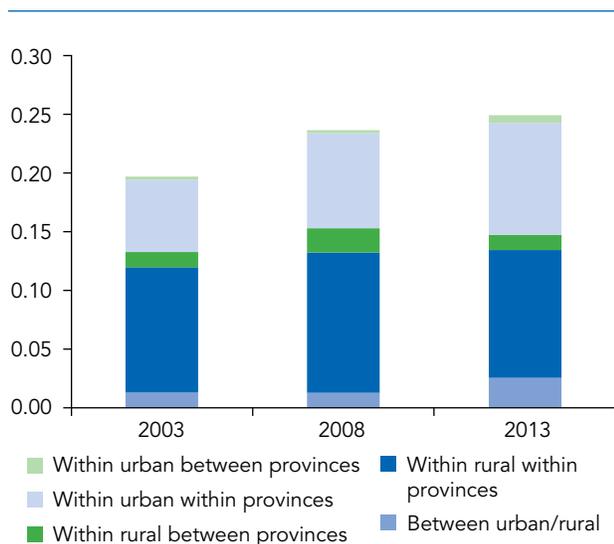
Sources: Authors' calculations from LECS 3-5.

between subgroups, to the absolute level of inequality. Applying this decomposition to provinces, subdivided into rural and urban areas reveals that inequality between urban and rural areas has been increasing and has in fact doubled between 2007/8 and 2012/13 (see Figure 4). Another emerging trend is rising inequality in urban areas, first within provinces, which has been consistently rising and increased by 54 percent between 2002/3 and 2012/13 and secondly, between provinces, which more than doubled between 2007/8 and 2012/13 although it still constitutes a small share of total inequality. The growing inequality in urban areas between provinces is largely driven by Vientiane Capital pulling away faster than other provinces between 2007/8 and 2012/13. On the other hand, inequality within rural areas declined between 2007/8 and 2012/13 to return to levels comparable to 2002/3. The decline in within rural

inequality between 2007/8 and 2012/13 is a result of a slowdown of consumption growth among the rich in rural areas as opposed to faster growth among the poor. Overall, a comparison to 2002/3 shows that nearly 96 percent of the change in inequality between 2002/3 and 2012/13 is accounted for by rising inequality within urban areas within provinces (contributing to 65 percent of the increase), rising inequality between rural and urban areas (contributing to 24 percent of the increase), and rising inequality within urban areas between provinces (contributing to 7 percent of the increase).

All else being equal, welfare growth would be associated with poverty reduction while growth in inequality would tend to increase poverty. This means that rising inequality dampens the effect of growth on poverty reduction. Table 9 shows the Datt and Ravallion (1992) decomposition of poverty reduction into the growth and redistribution components which provides information on the magnitude of these two effects. The growth component shows that the poverty headcount rate would have declined by 6.8 percentage points between 2007/8 and 2012/13 if mean consumption had grown without any change in relative inequality. The redistribution component suggests that the change in inequality alone would have increased poverty by 1.9 percentage points, if mean consumption had remained constant. Seen from that perspective, the increase in inequality over this period plays a role in explaining why the reduction in poverty has been lower than the rate of GDP growth.

However, the distributional pattern of consumption growth cannot, on its own, explain the apparent discrepancy between relatively moderate poverty reduction and rapid GDP growth. Another factor behind this apparent discrepancy is that household consumption growth was lower than

FIGURE 4: Theil index absolute decomposition of inequality

Sources: Authors' calculations from LECS 3, LECS 4 and LECS 5.

TABLE 9: Growth and redistribution decomposition of poverty, 2007/8–2012/13

Location	2008	2013	Actual change	Growth	Redistribution	Interaction
Urban	17.36	10.01	-7.34	-9.33	0.71	1.28
Rural	31.72	28.61	-3.11	-3.69	0.47	0.10
Lao PDR	27.58	23.25	-4.33	-6.83	1.92	0.58

Sources: Authors' calculations from LECS 3–5.

GDP growth. The mean per capita household consumption growth, measured using the LECS survey, was 2 percent per annum over the period. This is four percentage points below the average rate of GDP growth over the same period. It is household consumption growth, not GDP, which determines the rate of poverty reduction. The relationship between the rate of poverty reduction and GDP growth is therefore partly determined by the extent to which higher GDP growth is reflected (translated) in household consumption growth. The sensitivity of poverty to consumption growth is also determined by the existing distribution of consumption – if many households are clustered close to the poverty line for example, a relatively small increase in consumption can lead to a dramatic drop in poverty. In Laos, many households are clustered above the poverty line, implying an even higher growth rate in consumption would be required to achieve a significant reduction in poverty (see Figure 17 in annex 3).

It is also important to note other reasons for the discrepancy between poverty reduction and economic growth which are beyond the scope of this report. One such reason is the possible underestimation of consumption in surveys because they usually

fail to include super wealthy households who have a high non-response rate (see Ravallion, 2003). Accounting differences between the national accounts and the survey based consumption aggregate are another reason. The consumption aggregate in Lao PDR excludes rent and does not fully capture the flow of consumption (use value) from durables. Such exclusions can underestimate survey based consumption growth and the rate of poverty reduction if there is a rapid growth among the poor. Lastly, GDP itself could have been mis-measured. The interpretation of the poverty-growth gap highlighted in this report should bear these factors in mind.

Regional comparison

An international comparison shows that consumption levels in Lao PDR are still low relative to other countries in the region. About 28.8 percent of the population in Lao PDR had a daily consumption per person of less than \$1.25 in 2005 PPP terms. This was the highest in the South East Asia region, excluding Myanmar (see Table 10). About two thirds of the population in Lao PDR live on less than PPP\$2.0

TABLE 10: Regional comparison of poverty rate and inequality

Country	Poverty rate (PPP2005 1.25-a-day)		Cumulative GDP growth (percent)	Growth elasticity of poverty	Gini coefficient
	Most recent survey	Change			
Lao PDR : 2007–2012	28.8	6.1	33.1	0.5	36.2
Cambodia: 2007–2011	7.2	19.4	14.0	5.2	28.2
Indonesia: 2007–2013	9.7	10.8	30.5	2.4	37.2
Philippines: 2006–2012	17.8	3.7	28.2	0.8	43.1
Thailand: 2006–2012	0.1	0.8	9.0	7.5	39.3
Vietnam: 2010–2012	2.9	1.4	14.6	3.5	35.6

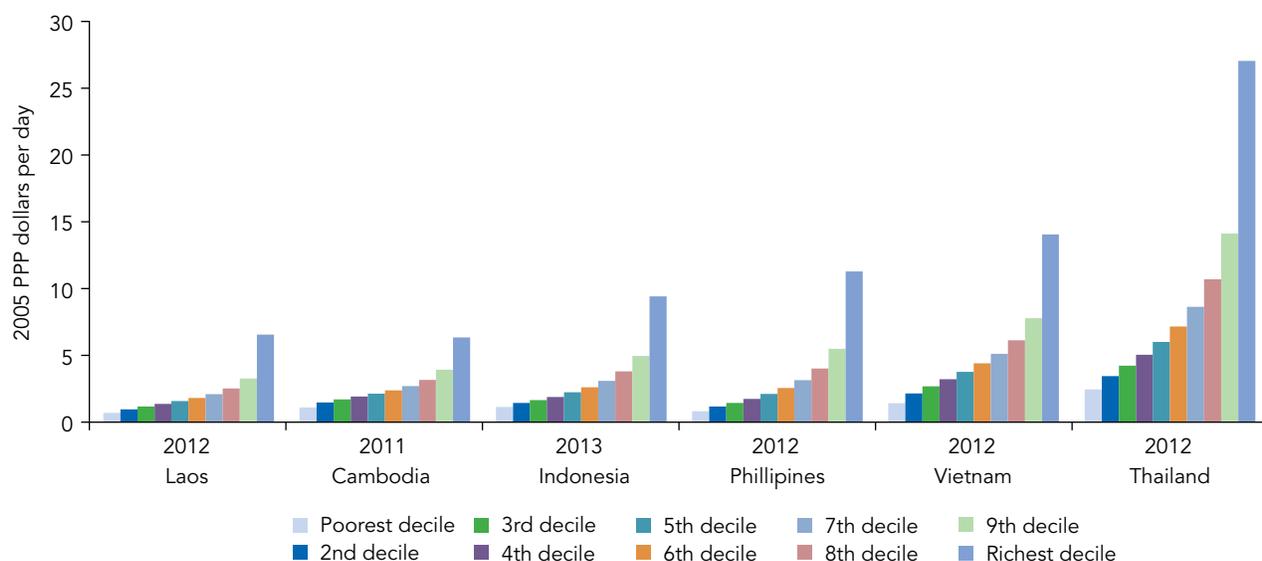
per day on average, compared to less than 20 percent in Vietnam and less than 10 percent in Thailand, while the average consumption among the richest 10 percent in Lao PDR is PPP\$6.6, which is less than the benchmark for the global middle class (see Figure 5).

Inequality in Lao PDR is within the range of surrounding countries, with the exception of Cambodia and Philippines (see Table 10) which respectively have much lower and higher levels of inequality. Nevertheless, Lao PDR still achieved a slower pace of poverty reduction from its economic growth than other countries in the region, including those with higher levels of inequality. Changes in the poverty rates based on the PPP\$1.25 per day show that Cambodia managed to reduce the poverty rate by 10 times as much per one percent increase in GDP per capita than Lao PDR managed. Philippines was the only other country for which poverty fell less proportionately to the rate of economic growth.

Summary

Poverty fell between 2007/8 and 2012/13 as consumption rose, but the improvement in both indicators was uneven and skewed towards urban areas. Changes in poverty were also uneven across provinces, with significant gains in most provinces in the north and increases in poverty in some provinces in the south, which had previously benefitted from rapid poverty reduction. Consumption grew at a faster pace among the better off, resulting in a slight increase in inequality, which could have slowed the rate of poverty reduction. In addition, household consumption increased relatively slowly over the period, compared to the pace of GDP growth. This also played a role in slowing the rate of decline in poverty. Had consumption increased as rapidly as GDP, a faster reduction in poverty could have been expected.

FIGURE 5: Regional comparison of mean consumption by decile



Source: Authors calculations from LECS 4-5.

Chapter 2

Patterns of poverty in Lao PDR

The geographical pattern of poverty

Rural areas account for 71 percent of the Lao population, and the rural poverty rate is almost three times the rate in urban areas. As a result, the overwhelming majority of the poor are rural residents—88 percent in 2012/13. Both rural and urban areas saw a decline in poverty between 2007/8 and 2012/13 but the rate of decline was much faster in urban areas. This means that poverty has become more concentrated in the countryside—the share of poor people living in rural areas

was nearly 6 percentage points higher in 2012/13 than it had been in 2007/8. This contrasts to the previous period between 2002/3 and 2007/8, during which poverty fell faster in rural than in urban areas, with a resulting decrease in the rural concentration of poverty.

Although the central region is not the poorest, it is home to over two thirds of the population and, as a result, is home to the largest share of the poor—36 percent in 2012/13. Following the increase in the poverty rate, the South accounted for 27 percent of the poor, a significant increase relative to

TABLE 11: Poverty headcount rate and distribution of the poor by geographic regions, 2002/3–2012/13

Region	Poverty Headcount Rate			Distribution of the Poor				Distribution of Population		
	2003	2008	2013	2003	2008	2013	Change*	2003	2008	2013
Lao PDR	33.5	27.6	23.2	100	100	100	0.0	100	100	100
Urban	19.7	17.4	10.0	13.5	18.1	12.4	-5.7	23.0	28.8	28.8
Rural	37.6	31.7	28.6	86.5	81.9	87.6	5.7	77.0	71.2	71.2
Region										
Vientiane	16.7	15.2	5.9	5.7	6.3	3.1	-3.3	11.5	11.5	12.0
North	37.9	32.5	25.8	36.9	38.0	34.0	-4.0	32.6	32.2	30.6
Central	35.4	29.8	23.3	38.0	38.6	35.8	-2.8	36.0	35.7	35.8
South	32.6	22.8	29.2	19.4	17.1	27.1	10.1	19.9	20.6	21.6
Urban										
Vientiane	15.6	15.3	5.5	4.1	4.2	2.3	-1.9	8.8	7.5	9.7
North	30.6	14.6	8.9	4.2	3.1	2.3	-0.8	4.7	5.9	6.0
Central	20.1	22.2	12.8	4.2	9.2	5.1	-4.2	7.0	11.5	9.2
South	12.8	11.3	16.1	1.0	1.6	2.8	1.1	2.5	3.9	4.0
Rural										
Vientiane	20.2	15.2	7.5	1.6	2.2	0.8	-1.4	2.7	3.9	2.4
North	39.1	36.5	29.9	32.6	34.9	31.7	-3.2	27.9	26.4	24.6
Central	39.0	33.5	26.9	33.9	29.3	30.7	1.4	29.1	24.2	26.6
South	35.5	25.5	32.2	18.4	15.5	24.4	8.9	17.3	16.7	17.6

Sources: Authors' calculations from LECS 3–5.

*Notes: Changes are shown for the period between 2007/8 and 2012/13.

2002/3, when just 17 percent of the poor lived in the South. The North accounted for 34 percent of the poor in 2012/13. As a result of its low poverty rate, Vientiane is home to just 3 percent of the poor (see Table 11).

The population is unevenly distributed across provinces, so poor households are not always concentrated in provinces with high poverty rates (see Table 12). Although Bokeo has the second highest

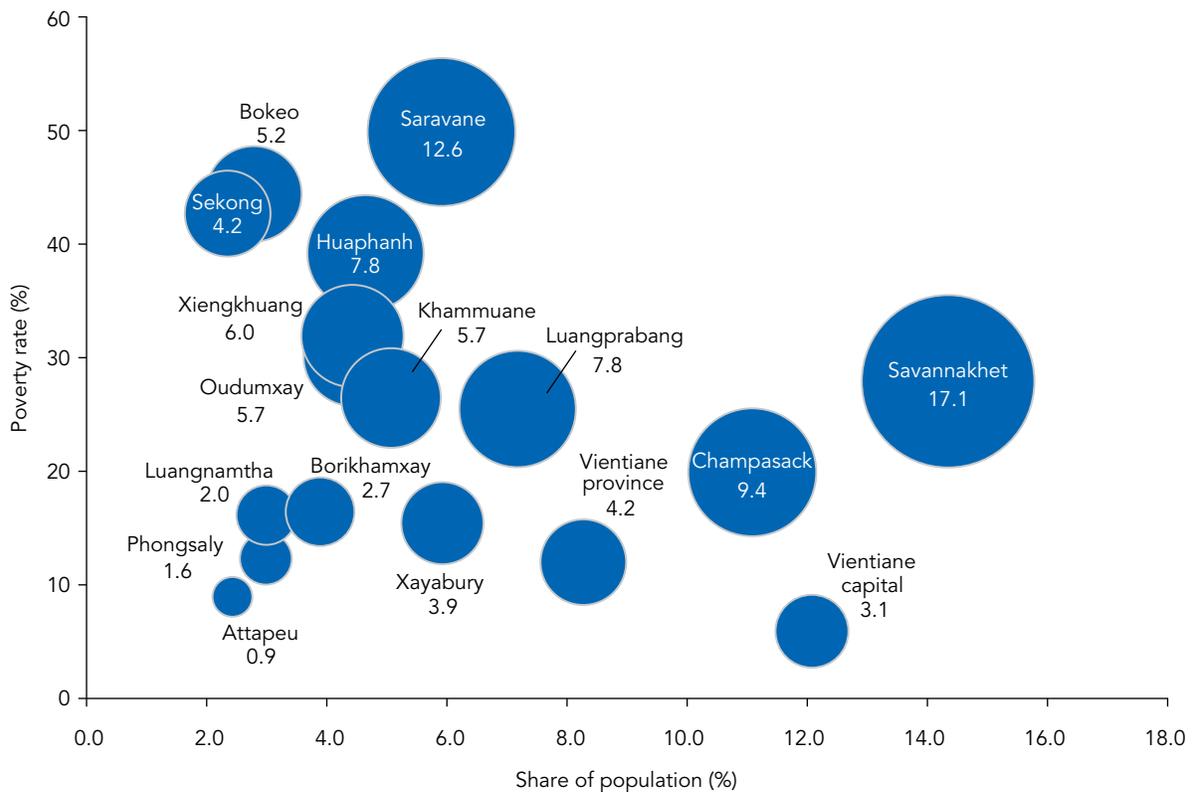
provincial poverty rate, it accounts for just 5 percent of the poor, while Savannakhet, by virtue of its large population share, accounts for 17 percent of all poor individuals, despite its moderate poverty rate (see Figure 6). Saravane has a high poverty rate combined with a significant population, and as a result 13 percent of the poor live there. The poor of Savannakhet, Saravane, Champasack, Luangprabang and Huaphanh together make up

TABLE 12: Poverty and distribution of the poor by province, 2002/3–2012/13

Sub-region	Poverty Headcount Rate			Distribution of the Poor				Distribution of Population		
	2003	2008	2013	2003	2008	2013	Change*	2003	2008	2013
Lao PDR	33.5	27.6	23.2	100	100	100	0.0	100	100	100
Urban	19.7	17.4	10	13.5	18.1	12.4	-5.7	23	28.8	28.8
Rural	37.6	31.7	28.6	86.5	81.9	87.6	5.7	77	71.2	71.2
Vientiane										
Vientiane Municipality	16.7	15.2	5.9	5.7	6.3	3.1	-3.3	11.5	11.5	12.0
North										
Phongsaly	50.8	46.0	12.3	5.1	5.1	1.6	-3.6	3.3	3.1	2.9
Luangnamtha	22.8	30.5	16.1	1.7	3.3	2.0	-1.2	2.5	3.0	3.0
Oudumxay	45.1	33.7	30.1	6.2	6.1	5.7	-0.4	4.6	5.0	4.4
Bokeo	21.1	32.6	44.4	1.5	2.9	5.2	2.4	2.4	2.4	2.7
Luangprabang	39.5	27.2	25.5	9.4	7.2	7.8	0.7	8.0	7.3	7.1
Huaphanh	51.5	50.5	39.2	8.2	10.1	7.8	-2.3	5.4	5.5	4.6
Xayabury	25.0	15.7	15.4	4.8	3.4	3.9	0.5	6.4	6.0	5.9
Centre										
Xiengkhuang	41.6	42.0	31.9	5.5	6.8	6.0	-0.8	4.4	4.4	4.4
Vientiane province	19.0	28.0	12.0	3.5	7.8	4.2	-3.5	6.3	7.6	8.2
Borikhamxay	28.7	21.5	16.4	3.1	2.8	2.7	-0.1	3.6	3.6	3.8
Khammuane	33.7	31.4	26.4	6.0	6.8	5.7	-1.1	6.0	6.0	5.0
Savannakhet	43.1	28.5	27.9	18.9	14.4	17.1	2.7	14.7	14.0	14.3
XaysombounSR	30.6			1.1				1.2		
South										
Saravane	54.3	36.3	49.8	9.1	8.3	12.6	4.3	5.6	6.3	5.9
Sekong	41.8	51.8	42.7	1.8	3.1	4.2	1.1	1.4	1.7	2.3
Champasack	18.4	10.0	19.9	6.0	3.9	9.4	5.6	11.0	10.7	11.0
Attapeu	44.0	24.6	8.9	2.5	1.8	0.9	-0.9	1.9	2.0	2.4

Sources: Authors' calculations from LECS 3-5.

*Notes: Changes are shown for the period between 2007/8 and 2012/13.

FIGURE 6: The distribution of the poor by geographical location, 2002/3–2012/13

Sources: Authors' calculations from LECS 5.

54.7 percent of the poor nationwide. The first three (Savannakhet, Saravane and Champasack) accounted for nearly 40 percent of the poor people in Lao PDR despite their combined share of the population being 31.2 percent. This was 12.6 percentage points higher than their share in 2007/8 yet their combined population share did not change. This indicates an increased concentration of the poor in these provinces.

Poverty remains higher in historically poor districts – those identified as priority or second priority districts for implementation of the national poverty reduction program.⁴ However, poverty declined faster in the first priority districts over the period 2007/8–2012/13 than in any other areas of the country. At 50.2 percent in 2002/3, poverty was highest in first priority districts—double the poverty rate in non-priority districts. These first priority districts had the largest decline in poverty over the 5 year period between 2007/8 and 2012/13. Over this period, the poverty headcount rate in first priority

districts declined by 9.2 percentage points (see Table 13). This was significantly faster than other districts (nearly 6 percentage points more), whereas in the previous period poverty had declined at similar rates across the various district types. With a poverty rate of 34.3 percent in 2012/13, first priority districts have caught up with second priority districts, where poverty declined by only 1.6 percentage points in aggregate.

Despite the progress, the gap between first priority districts and non-priority districts remains large. The poverty headcount rate in first priority districts (and now the second priority districts) is still double the poverty rate in non-priority districts though the difference in poverty rates between first

⁴ The government identified 47 districts and another second set of 25 districts for priority in the implementation of interventions under the national poverty reduction program (Government of Lao PDR 2003).

TABLE 13: The poverty headcount rate and distribution of the poor by district priority, 2002/3–2012/13

District Priority	Poverty Headcount Rate				Distribution of the Poor				Distribution of Population			
	2003	2008	2013	Change*	2003	2008	2013	Change*	2003	2008	2013	Change*
Lao PDR	33.5	27.6	23.2	-4.3	100	100	100	0.0	100	100	100	0.0
1 st priority	50.2	43.5	34.3	-9.2	36.7	39.3	35.4	-3.9	24.5	24.9	24.0	-0.9
2 nd priority	41.2	36.2	34.6	-1.6	13.7	14.7	17.5	2.8	11.1	11.2	11.8	0.6
Non-priority	25.8	19.9	17.1	-2.7	49.6	46.0	47.1	1.1	64.3	63.9	64.2	0.3

Sources: Authors' calculations from LECS 3-5.

*Notes: Changes are shown for the period between 2007/8 and 2012/13.

and non-priority districts is narrower in absolute terms (17 percentage points difference in 2012/13 compared to 25 percentage points difference in 2002/3). The first priority districts' share of the poor in 2012/13 has remained similar to the share in 2002/3 (although it declined from the share in 2007/8) while the share of the poor in second priority districts has increased (by 2.8 percentage points between 2007/8 and 2012/13) and that of non-priority districts declined.

The poverty rate is highest in upland areas, but it declined faster in these areas too (Table 14). Lowland areas had a poverty headcount rate of 18.8 percent compared to 33.9 percent in upland areas. However, poverty declined by only 1.6 percentage points in lowland areas compared to a decline of 8.7 percentage points in upland areas. The majority of the population lives in lowland areas, so they account for 45 percent of the poor, despite their lower poverty rate. But as a result of the slower poverty decrease, the share of the poor in lowland areas increased by 3.7 percentage points between 2007/8

and 2012/13, reversing the previous decline observed between 2002/3 and 2007/8.

A comparison of poverty by border proximity in Table 15 shows that the poverty headcount rate remains highest in locations bordering with Vietnam (at 38.4 percent), despite the fact that poverty fell faster among these households during the most recent period than in any other border area. Poverty also declined rapidly along the China-Myanmar border. The poverty rate in these districts is now equal to the poverty rate in districts bordering Thailand – historically the wealthiest of the border regions. On the other hand, the poverty headcount rate in areas bordering with Cambodia rose by 10.3 percentage points. The districts bordering Cambodia now have the second highest poverty rates nationwide, at 33.4 percent. Poverty continued to decline in districts without international borders (referred to here as “inland” districts).

The decline in poverty among households along China-Myanmar and Vietnam borders occurred irrespective of district priority (see Table 16). Poverty

TABLE 14: The poverty headcount rate and distribution of the poor by altitude, 2002/3–2012/13

Altitude	Poverty Headcount Rate				Distribution of the Poor				Distribution of Population			
	2003	2008	2013	Change*	2003	2008	2013	Change*	2003	2008	2013	Change*
Lao PDR	33.5	27.6	23.2	-4.3	100	100	100	0.0	100	100	100	0.0
Lowland	28.6	20.4	18.8	-1.6	50.6	41.6	45.4	3.7	59.2	56.3	56.1	-0.2
Midland	36.7	29.1	22.0	-7.1	18.9	19.5	17.3	-2.2	17.2	18.5	18.3	-0.3
Upland	43.4	42.6	33.9	-8.7	30.5	38.8	37.3	-1.5	23.5	25.2	25.6	0.4

Sources: Authors' calculations from LECS 3-5.

*Notes: Changes are shown for the period between 2007/8 and 2012/13.

TABLE 15: Poverty headcount rate and distribution of the poor by border proximity, 2002/3–2012/13

Border proximity	Poverty Headcount Rate				Distribution of the Poor				Distribution of Population			
	2003	2008	2013	Change*	2003	2008	2013	Change*	2003	2008	2013	Change*
Lao PDR	33.5	27.6	23.2	-4.3	100	100	100	0.0	100	100	100	0.0
Inland	35.1	29.2	26.1	-3.1	50.7	51.1	54.7	3.6	48.4	48.3	48.7	0.5
Thailand	22.6	16.1	13.5	-2.6	22.9	19.6	19.1	-0.6	33.9	33.7	32.8	-0.9
China-Myanmar	29.7	28.2	13.5	-14.7	2.6	3.0	1.9	-1.1	2.9	2.9	3.2	0.3
Vietnam	58.3	54.5	38.4	-16.1	19.6	23.5	18.9	-4.6	11.3	11.9	11.5	-0.4
Cambodia	39.8	23.1	33.4	10.3	4.2	2.7	5.4	2.7	3.6	3.2	3.7	0.5

Sources: Authors' calculations from LECS 3–5.

*Notes: Changes are shown for the period between 2007/8 and 2012/13.

generally declined among households in first priority districts irrespective of bordering locations, but as Figure 7 shows, poverty declined even faster among households in non-priority districts bordering China-Myanmar and Vietnam. Poverty declined in both first and non-priority districts bordering with Cambodia too, implying the aggregate increase in the poverty rate among households in locations bordering Cambodia is accounted for by the increase in poverty in second priority districts. Poverty also increased among households in second priority districts bordering with Thailand while it declined in first and non-priority districts along this border. Only in inland areas did poverty decline faster in second priority districts than other areas, otherwise welfare generally stagnated in second priority districts.

An analysis by altitude and border location shows a nuanced picture of poverty trends (Table 17). The relatively small aggregate decline in poverty

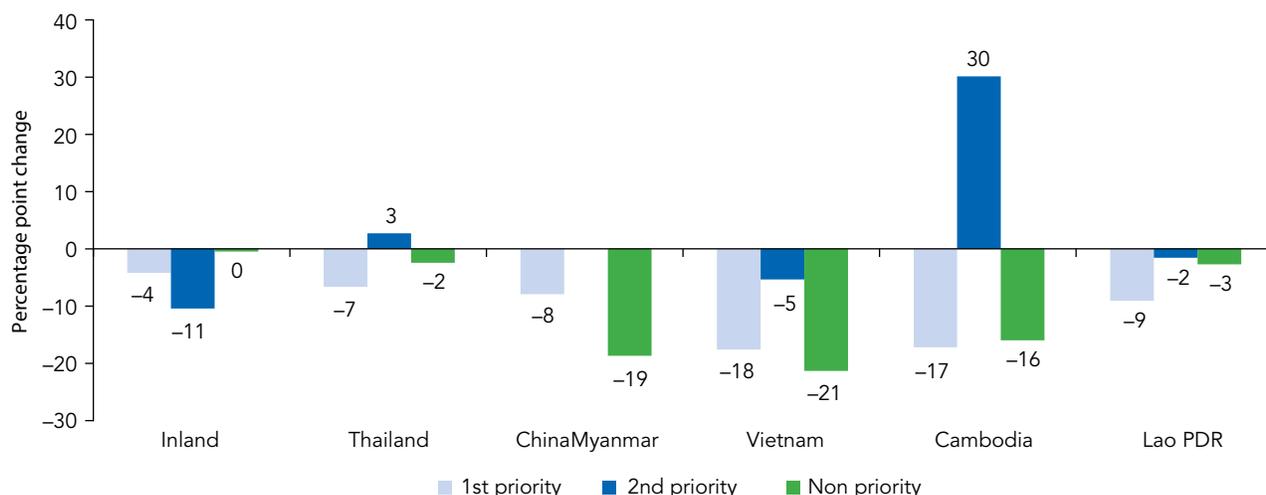
in lowland areas is accounted for by the increase in poverty among households bordering with Cambodia and stagnation among inland households (with less than half a percentage point decline). Together these areas account for half the population in lowland areas. Stagnation or increase in poverty in these areas offset the decline in poverty in other lowland areas bordering Thailand and China-Myanmar which already had low poverty rates and accounted for 45 percent and 1.5 percent of the population in lowland areas respectively. While poverty declined in upland areas elsewhere in the country, it actually increased among households in upland areas bordering Thailand. The upland areas are the only locations where poverty increased among households bordering Thailand. They are also the poorest areas (among those bordering with Thailand border). Irrespective of altitude, poverty declined fastest among households along the China-Myanmar and Vietnam borders.

TABLE 16: Poverty headcount rate by district priority and border proximity, 2002/3–2012/13

Border proximity	1 st priority district				2 nd priority district				Non-priority district			
	2003	2008	2013	Change*	2003	2008	2013	Change*	2003	2008	2013	Change*
Inland	48.1	40.2	36.0	-4.2	41.4	37.6	27.0	-10.5	28.0	22.6	22.2	-0.5
Thailand	29.6	21.5	14.8	-6.7	28.8	23.8	26.5	2.7	21.6	15.3	12.8	-2.5
China-Myanmar	40.2	34.4	26.4	-8.0					25.5	26.2	7.4	-18.8
Vietnam	63.0	56.4	38.7	-17.7	52.6	56.1	50.7	-5.4	44.1	39.9	18.4	-21.5
Cambodia	35.3	29.2	11.8	-17.3	36.3	16.4	46.6	30.3	43.2	28.7	12.6	-16.1

Sources: Authors' calculations from LECS 3–5.

*Notes: Changes are shown for the period between 2007/8 and 2012/13.

FIGURE 7: Change in poverty by border proximity and district priority: 2007/8–2012/13**TABLE 17:** Poverty by altitude and border proximity, 2002/3–2012/13

	Lowland				Midland				Upland			
	2003	2008	2013	Change*	2003	2008	2013	Change*	2003	2008	2013	Change*
Inland	31.1	23.6	23.2	-0.4	32.5	23.3	18.2	-5.1	45.5	44.1	36.6	-7.5
Thailand	22.4	15.7	12.1	-3.6	24.0	16.0	13.7	-2.3	22.7	19.0	23.2	4.3
China-Myanmar	24.7	10.3	3.2	-7.1	58.1	43.2	12.9	-30.3	23.1	33.6	18.6	-15.0
Vietnam	66.5	54.4	33.8	-20.5	60.9	56.5	39.3	-17.1	54.7	53.5	38.7	-14.8
Cambodia	39.8	23.1	33.4	10.3								
Lao PDR	28.6	20.4	18.8	-1.6	36.7	29.1	22.0	-7.1	43.4	42.6	33.9	-8.7

Sources: Authors' calculations from LECS 3-5.

*Notes: Changes are shown for the period between 2007/8 and 2012/13.

Household characteristics of the poor

Poverty remains higher among minority (non Lao-Tai) ethnic groups, with the exception of the Chine-Tibet ethnic group. Historically this group was also disadvantaged, but between 2002/3 and 2012/13 the poverty rate among this group fell by more than half to a level only slightly above the rate among Lao-Tai households. The poverty rates among Lao-Tai and Chine-Tibet ethnic groups are 15.4 percent and 16.4 percent respectively. The poverty rate among Mon-Khmer headed households is the highest, at 42.3 percent, and the Hmong-Lu-Mien headed households are the second poorest group, with a poverty rate of 39.8 percent (see Table 18).

The majority of non Lao-Tai groups reside in historically poor geographical locations, mostly upland areas. However, further analysis (see Tables 41 and Table 42 in annex 3) shows that poverty is generally higher among minorities even in locations sharing similar geographical characteristics (like altitude or border proximity). Other household characteristics, such as education, are also strongly correlated with ethnicity (see Table 48 in annex 3). Non Lao-Tai ethnic groups make up a third of the population but constitute a disproportionate share of people in households headed by someone with no formal education (64.4 percent) or incomplete primary education (44.2 percent).

TABLE 18: Poverty headcount rate by ethnicity of household head, 2002/3–2012/13

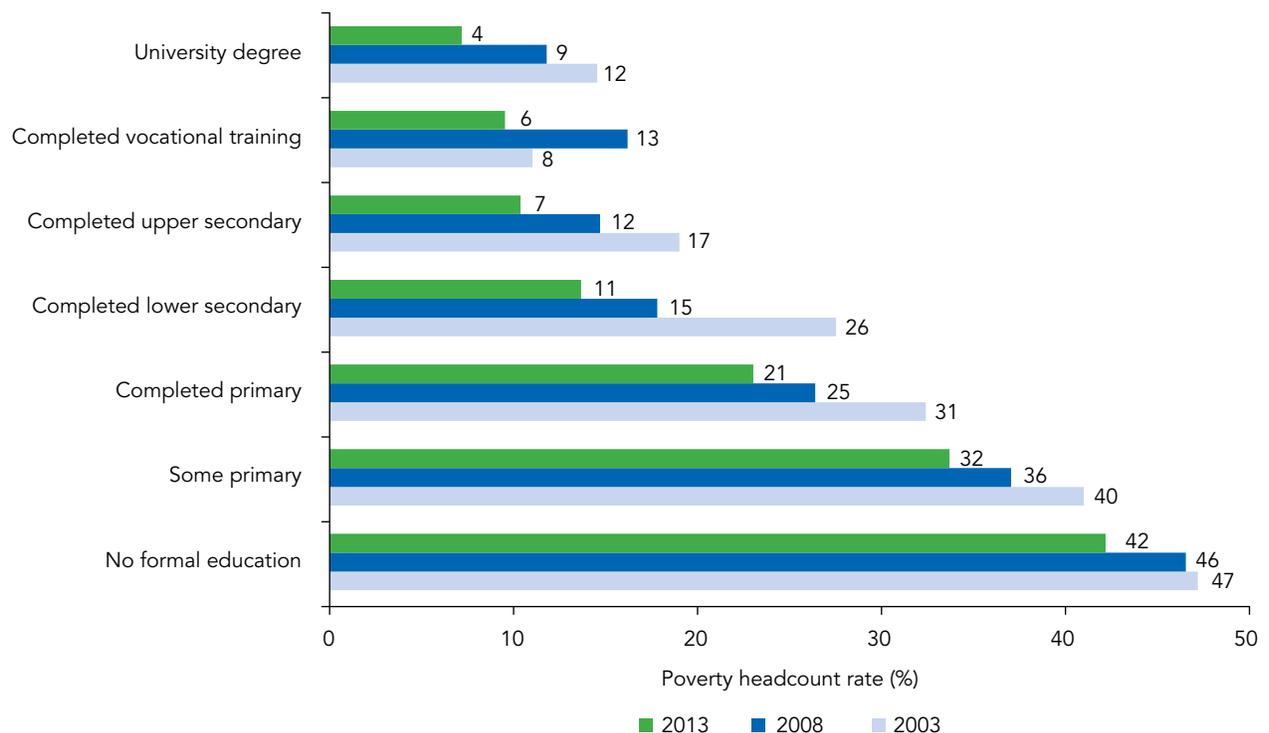
Ethnicity	Poverty Headcount Rate				Distribution of the Poor				Distribution of Population			
	2003	2008	2013	Change*	2003	2008	2013	Change*	2003	2008	2013	Change*
Lao-Tai	25.1	18.4	15.4	-3.0	49.6	44.0	44.2	0.2	66.4	66.0	66.7	0.7
Mon-Khmer	53.7	47.3	42.3	-5.0	33.5	36.9	40.3	3.3	20.9	21.5	22.1	0.6
Chine-Tibet	40.0	42.2	16.4	-25.8	4.0	4.8	2.4	-2.4	3.3	3.1	3.4	0.2
Hmong-Lu-Mien	45.8	43.7	39.8	-3.9	11.5	13.9	12.1	-1.8	8.4	8.8	7.1	-1.7
Other	48.1	22.0	33.1	11.1	1.5	0.5	1.0	0.6	1.0	0.6	0.7	0.1
Lao PDR	33.5	27.6	23.2	-4.3	100.0	100.0	100.0	0.0	100.0	100.0	100.0	0.0

Sources: Authors' calculations from LECS 3–5.

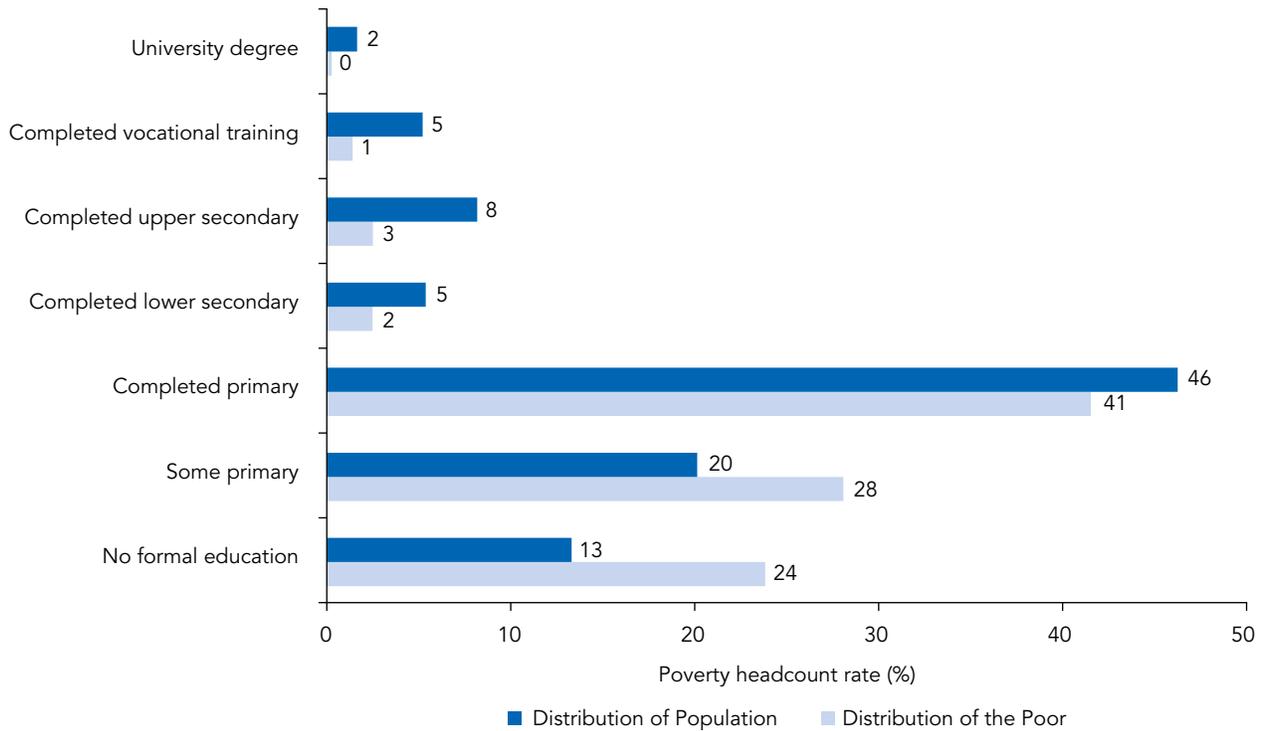
*Notes: Changes are shown for the period between 2007/8 and 2012/13.

Education is strongly correlated to poverty. People living in households headed by a person with little or no formal education have the highest poverty headcount rate, while poverty is lowest among households headed by highly educated people (see Figure 8). The poverty rate among people whose household head has no formal education (41.7 percent) or only

some primary education (32.4 percent) is more than 3 times higher than the poverty rate among people in households headed by someone with at least lower secondary education. People living in households headed by a person with less than complete primary education constitute 51.9 percent of the poor, despite making up only 33.4 percent of the population

FIGURE 8: Poverty headcount rate by household head's highest level of completed education, 2002/3–2012/13

Sources: Authors calculations from LECS 4–5.

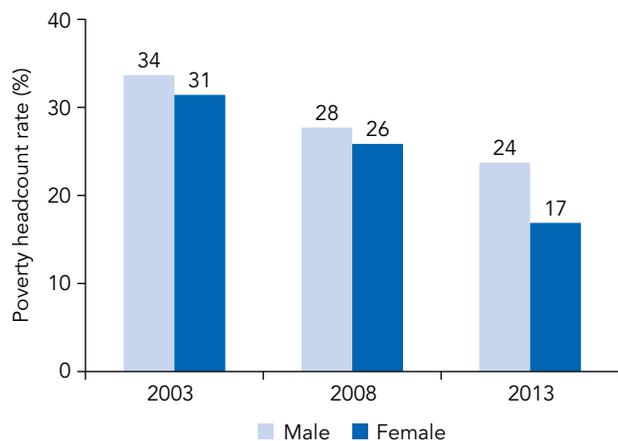
FIGURE 9: Distribution of the poor by household head's highest level of completed education, 2012/13

Sources: Authors calculations from LECS 4-5.

(see Figure 9). Progress in poverty reduction has been slower among people living in households headed by someone with incomplete primary education or no formal schooling. The rate of decline in poverty was 11.5 percent and 19.8 percent respectively, for these groups between 2002/3 and 2012/13, compared to a 32.8 percent decline in households headed by someone with complete primary education or a halving of poverty among those whose household head has more than complete primary education.

Poverty was significantly lower among female headed than male headed households in 2012/13, after a decline by 9 percentage points between 2007/8 and 2012/13 compared to a 4 percentage point decline in poverty among male headed households (see Figure 10). This resulted in a significant gap in poverty between people living in male headed households (with a poverty rate of 23.7 percent) and those living in female headed households (with a poverty rate of 16.8 percent). The reasons behind this pattern require further investigation. The difference in poverty rates and the differing pace of poverty reduction is likely to be related not only to the gender of the household

head, but to other characteristics shared by these households. For example, female-headed households are disproportionately likely to live in Vientiane where the rate of poverty reduction was higher.

FIGURE 10: Trends in the poverty headcount rate by gender of household head, 2002/3–2012/13

Sources: Authors calculations from LECS 4-5.

Household activities and poverty

Agricultural households and those headed by an unemployed person have the highest poverty rates. Those headed by a paid wage worker have the lowest poverty rate (see Table 19). The poverty rate among people with unemployed household heads is 54.6 percent and the highest, but only a small fraction of the population (1.2 percent) lived in such households. This was a new phenomenon in 2012/13. The poverty rate among people living in households headed by economically inactive persons (mostly senior citizens) was close to the national average. Between 2007/8 and 2012/13, poverty declined less rapidly among households headed by someone primarily employed in family agriculture (by 3 percentage points) and faster for those households headed by a paid wage worker (by 5.5 percentage points). This is the reverse of the trend between 2002/3 and

2007/8. During this period, poverty among people living in households headed by a paid wage worker declined by 1.4 percentage points compared to a 6.7 percentage points decline among people living in households headed by a family farmer.

In rural areas, households without land have the lowest poverty rate—it is likely that most of these households are employed in off-farm work or as civil servants, or run off-farm businesses. Amongst those with land, the households with most land have the lowest poverty rates. However, in the period 2007/8 to 2012/13, poverty declined relatively slowly among large agricultural land owners (an average of 5 hectares for the top two quartiles) and fastest among those with smaller land parcels (an average of 1 hectare for the bottom two quartiles) or without agricultural land (see Table 20). Households with a relatively large agricultural income base, particularly crop farmers, did not have the same improvements

TABLE 19: Poverty headcount rate by main employment status of the household head, 2002/3–2012/13

Main employment status in past 7 days	2003	2008	2013	Change*
Lao PDR	33.5	27.6	23.2	-4.3
Paid worker	16.5	15.1	9.6	-5.5
Self-employed non-farm	20.1	15.4	11.3	-4.1
Self-employed, agriculture	38.8	32.1	29.1	-3.0
Unemployed	–	–	54.6	–
Economically Inactive	35.8	32.5	23.4	-9.1

Sources: Authors' calculations from LECS 3–5.

*Notes: Changes are shown for the period between 2007/8 and 2012/13.

TABLE 20: Poverty headcount rate by agriculture land ownership in rural areas, 2002/3–2012/13

Quartiles of land holdings	All rural areas				Among rural crop farmers			
	2003	2008	2013	Change*	2003	2008	2013	Change*
No land	15.3	14.1	8.0	-6.1				
Lowest quartile	37.4	35.9	31.1	-4.8	40.7	38.9	35.6	-3.2
Second quartile	41.0	33.3	28.6	-4.7	42.4	36.1	30.8	-5.2
Third quartile	37.1	31.0	29.8	-1.2	38.0	31.9	33.3	1.4
Highest quartile	31.1	21.7	20.3	-1.3	32.8	23.8	21.5	-2.4
Lao PDR - Rural	37.6	31.7	28.6	-3.1	38.5	32.5	30.1	-2.4

Sources: Authors' calculations from LECS 3–5.

*Notes: Changes are shown for the period between 2007/8 and 2012/13.

in welfare experienced by non-agriculture households yet they previously had the largest welfare improvement between 2002/3 and 2007/8.

A comparison of poverty trends by economic activity and location between two periods, 2002/3 to 2007/8 and 2007/8 to 2012/13, shows opposing patterns. In the first period, poverty declined significantly among agricultural households and slowly among paid wage workers. The opposite is true for the later period, when poverty declined slower among agricultural households than paid wage workers. This reversal in trends mirrors changes in the terms of trade between these two periods. During the first period, agriculture produce prices rose significantly in all regions (see Figure 22 and Figure 23 in annex 3). This would favor the larger agriculture land owners who are net sellers but hurts many paid wage workers, who are net food buyers. In the later period, agricultural produce prices dropped in most areas (except for meat and fish). This reduces large farmers' welfare but raises the welfare of wage workers, who are net food buyers. Thus even as agriculture acreage increased by 12.5 percent and rice production by 11 percent between 2007/8 and 2012/12, real average agriculture income declined, especially in the southern provinces where the increase in both acreage and harvest was below the national average (Lao Statistics Bureau, 2014).

Migrant work, either in the larger cities such as Vientiane or in neighboring countries, has become an important source of support for Lao households. Eleven percent of households received remittances in 2012/13. People living in households that receive remittances have a much lower headcount poverty rate than those in households without remittances (see Table 21). In 2012/13, the poverty rate among households receiving remittances was 12.7 percent

compared to 24.5 percent among those who do not receive remittances. However, this represents a slight increase relative to 2007/8, when the poverty rate among households with remittances stood at 11 percent.

Summary

The results from the LECS 5 survey show a growing concentration of poverty in rural areas, and mainly in the south and central provinces. Poverty declined among households along the China-Myanmar and Vietnamese borders irrespective of district priority and altitude, while it increased in second priority districts and lowland areas along the Cambodian border, which had previously experienced rapid poverty reduction. Poverty also stagnated in lowland areas and non-priority districts in inland areas. The increase or stagnation in poverty among households in areas bordering Cambodia or inland reversed the significant reduction in poverty previously experienced in these areas between 2002/3 and 2007/8. Poverty declined fastest in first priority districts, which now have poverty rates close to those for second priority districts. However, the poverty rate in these districts remains significantly higher than non-priority districts. Poverty declined slowest in second priority districts in general.

Poverty remains higher among non Lao-Tai ethnic groups. Only the Chine-Tibet ethnic group saw a fast enough decline in poverty between 2007/8 and 2012/13 to catch up with the Lao-Tai ethnic group. Ethnic minorities account for a disproportionate share of people in households headed by someone with less than complete primary education, and it is in such households where poverty declined the slowest between 2002/3 and 2012/13. By contrast, poverty halved over this ten year period among households headed by a person who had completed at least post primary education. In a reversal of trends, poverty declined more slowly among agricultural households than among wage workers between 2007/8 and 2012/13. This pattern mirrors the urban-rural and lowland-upland trends in changes in consumption, and is consistent with deterioration in terms of trade for farmers, as the prices of crop produce (especially grains) declined over this period.

TABLE 21: Poverty headcount rate by receipt of remittances

Remittance receipt status	2003	2008	2013	Change*
No remittances	34.3	29.4	24.5	-4.9
Received remittances	21.5	11.1	12.7	1.6
Lao PDR	33.5	27.6	23.2	-4.3

Sources: Authors' calculations from LECS 3-5.

*Notes: Change between 2007/8 and 2012/13.

Chapter 3

Household expenditure patterns

As explored above, consumption increased significantly between 2007/8 and 2012/13 for most groups, although the distribution of growth was uneven. An examination of this topic provides additional insights into the changes in household welfare taking place over the period.

Composition of total consumption

Food expenditure continues to make up the bulk of consumption expenditure—73 and 64 percent in rural and urban areas respectively—and there was no significant change in the average share of food expenditure between 2007/8 and 2012/13 (Table 22). In both surveys, the average share of food expenditure among rural households was at least 9 percentage points higher than the average share in urban areas. The gap in the expenditure share between rural and urban households was largest (in relative terms) for education, recreation and cultural activities, personal care items and transport and communications. On the other hand, rural households devoted roughly the same share of expenditure to alcohol and tobacco as urban ones and a higher share to utilities and fuel (mainly firewood). The share of own consumption is substantially higher in rural areas, as households there are able to produce much of their own food.

Poor households devote a greater share of their expenditures to food than the non-poor (see Table 23). In both rural and urban areas poor households spent 80 percent or more of their expenditure on food in 2012/13. This is 23 percentage points higher than the share among households with consumption expenditure above twice the poverty line. Poorer households relied more on own food consumption than better-off households in both rural and urban areas. Within each group, however, the reliance on own production was substantially lower among urban households, even though the share of food in total expenditure was similar. The spending patterns

TABLE 22: Composition of total consumption by rural-urban location: 2007/8 to 2012/13

Expenditure item	2007/8		2012/13	
	Rural	Urban	Rural	Urban
Market food expenditure	21.2	46.2	23.7	47.6
Own consumption	52.9	19.0	49.3	16.0
Total food consumption	74.1	65.2	73.0	63.6
Clothes and footwear	2.3	2.6	2.0	2.8
Utilities and fuel	5.3	4.2	5.9	4.9
Household sundries	2.5	3.6	2.2	3.2
Medical care	1.6	2.0	1.7	2.2
Transport and communication	6.6	10.4	8.6	13.6
Education	0.8	1.7	0.5	1.4
Personal care items	1.3	2.1	1.1	2.0
Recreation and culture	1.9	3.9	1.0	2.2
Alcohol and tobacco	2.5	3.0	3.5	3.6
Miscellaneous	1.1	1.5	0.5	0.5
Total non-food total consumption	25.9	34.8	27.0	36.4

Sources: Authors' calculations from LECS 4–5.

of poor urban households are quite similar to their rural counterparts in most other aspects, with the exception of transport and communications with a substantially higher proportion of expenditure for the urban poor than for the rural poor, and utilities and fuel, which is a larger share for the rural poor.

As noted above, the poor spend a higher proportion of their expenditure on food than the non-poor. As a result, the proportion of people whose food expenditure is less than the food poverty line, at 20.1 percent, is 3 percentage points lower than

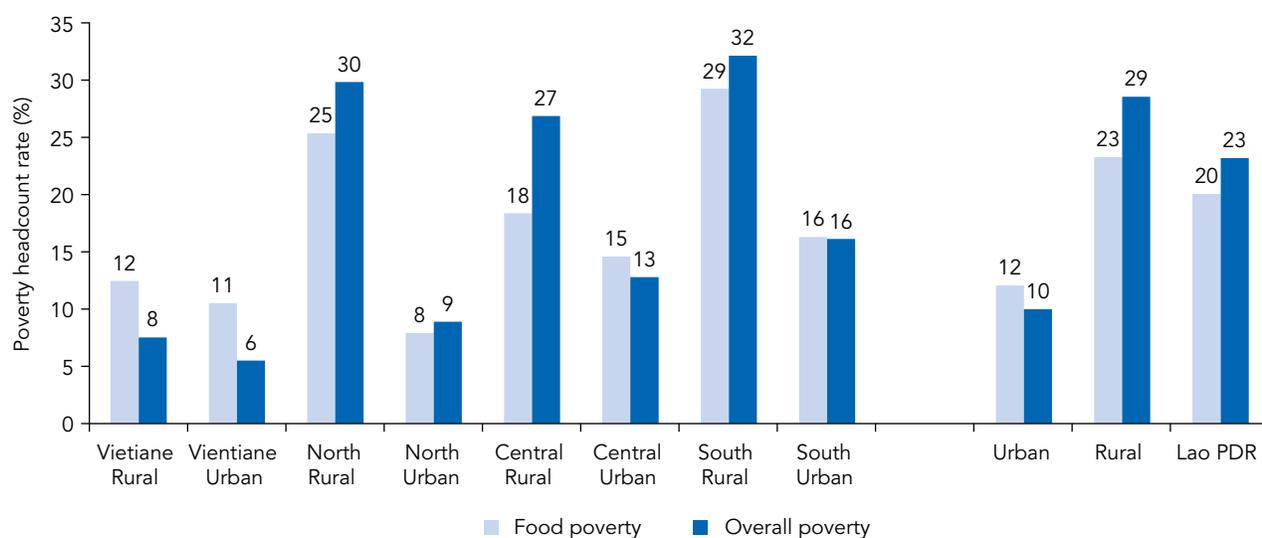
TABLE 23: Composition of total consumption by poverty status, 2012/13

Expenditure item	Rural areas			Urban areas		
	Poor	Non-poor, below twice poverty line	Non-poor, above twice poverty line	Poor	Non-poor, below twice poverty line	Non-poor, above twice poverty line
Market food expenditure	14.8	24.3	29.8	44.3	48.7	47.3
Own consumption	68.9	50.8	30.7	35.2	22.1	8.9
Food total	83.6	75.1	60.6	79.5	70.8	56.2
Clothes and footwear	0.9	2.0	2.9	0.8	2.3	3.4
Utilities and fuel	7.0	6.0	5.0	3.8	4.7	5.3
Household sundries	1.0	2.1	3.4	1.6	2.5	3.9
Medical care	0.6	1.5	2.8	1.2	1.6	2.8
Transport and communication	3.8	7.4	14.5	8.5	11.1	16.1
Education	0.1	0.5	1.0	0.4	0.7	2.1
Personal care items	0.5	0.9	2.0	0.8	1.2	2.7
Recreation and culture	0.3	0.9	1.9	0.8	1.4	3.0
Alcohol and tobacco	1.7	3.2	5.4	2.2	3.2	4.1
Miscellaneous	0.4	0.4	0.6	0.3	0.5	0.5
Non-food total	16.4	24.9	39.4	20.5	29.2	43.8

Sources: Authors' calculations from LECS 5.

the overall poverty headcount rate. This masks a significant rural-urban differential. In rural areas, the food poverty rate is 5.3 percentage points lower than overall poverty whereas in urban areas, the

food poverty rate is 2 percentage points higher (see Figure 11). In other words, a significant proportion of urban households allocate too little of their expenditure to food to bring themselves above the

FIGURE 11: Food poverty headcount rate by geographical location, 2012/13

food poverty line, even though their total expenditures are sufficient to bring them above the poverty line overall. This result is driven by Vientiane Municipality, which has a food poverty rate of 10.5 percent, i.e. 5 percentage points higher than the overall poverty rate, and by the central urban region, where the food poverty rate is 2 percentage points higher than the overall poverty rate.

Composition of food consumption expenditure

The composition of food expenditure changed significantly between 2007/8 and 2012/13, even though its overall share in consumption remained roughly constant. The average share of rice in total food expenditure declined by almost 9 percentage points in rural areas and by 7 percentage points in urban areas. Rural households in particular spent a higher share on meat and fish in 2012/13 when compared to 2007/8 (see Table 24).

The average share of rice expenditure decreases with total consumption. For example, the share of rice expenditure among households below the poverty line in urban areas was double the average share for urban households whose consumption is at least twice the poverty line (see Table 25). Those above the poverty line but with consumption expenditure below twice the poverty line spent a greater share on rice than households whose consumption is at least twice the poverty line, but they too spent a smaller share on rice than households below the poverty line.

There are several possible explanations for the decline in the share of rice. It could represent a price effect, as the price of rice has declined relative to other food products. It could also reflect increased household well-being, with the share of rice declining in favor of other preferred food as average consumption rises. Another possibility is that there has been a change in preferences, with households, including the poor, sacrificing calories for foods that they deem more desirable (see Jensen and Miller, 2010a).

Examination of the quantity of food consumed, calculated using the LECS nutrition module, shows that the decline in the share of rice reflects

TABLE 24: Composition of food consumption by rural-urban location, 2007/8 and 2012/13

Food item	2007/8		2012/13	
	Rural	Urban	Rural	Urban
Rice	47.4	29.9	38.8	22.8
Other cereals and bread	1.8	3.6	2.1	3.4
Meat	19.3	21.7	22.2	23.8
Fish	13.3	12.8	15.7	12.5
Milk, cheese and eggs	0.8	2.2	1.3	2.8
Oils and fats	0.1	0.4	0.2	0.4
Fruits	1.2	3.5	1.3	3.6
Vegetables and tubers	10.1	9.7	11.1	10.0
Sugar and sweets	0.4	1.0	0.6	1.3
Beverages	0.7	2.5	1.6	4.2
Meals in restaurants	2.3	10.4	2.8	13.4
Other food	2.5	2.3	2.2	1.8

Sources: Authors' calculations from LECS 4-5.

households spending more on other items but not necessarily by sacrificing calories. Neither the quantities of rice nor of meat consumed in 2012/13 differ statistically from their levels in 2007/8 (see Table 26). The price of rice in 2012/13 was relatively lower than meat, fish and other food items compared to 2007/8. In some regions like the south for example, rice prices actually declined. The reduction in the share of rice therefore indicates that households utilized the real income "gain" from the lower cost of rice consumption which remained fixed in terms of quantity, to maintain their meat and fish consumption in the face of higher prices. This pattern, together with the negative correlation between the share of rice and total expenditure, reveals a preference for proteins and the existence of a caloric threshold beyond which people spend on items other than rice (Jensen and Miller 2010b). Studies (Ramasawamy and Armstrong, 2012 and World Food Programme, 2007) have documented significant dietary imbalances in Lao PDR. While carbohydrate consumption (driven by rice) has reached

TABLE 25: Composition of food consumption by poverty status, 2012/13

Food item	Rural areas			Urban areas		
	Poor	Non-poor, below twice poverty line	Non-poor, above twice poverty line	Poor	Non-poor, below twice poverty line	Non-poor, above twice poverty line
Rice	48.2	39.2	30.3	36.1	26.9	18.0
Other cereals and bread	1.4	2.1	2.6	2.8	3.0	3.8
Meat	17.5	22.0	26.6	19.5	24.3	24.0
Fish	14.9	16.1	15.8	12.2	13.4	11.8
Milk, cheese and eggs	0.8	1.4	1.7	2.2	2.3	3.3
Oils and fats	0.1	0.2	0.3	0.2	0.4	0.5
Fruits	0.8	1.1	1.9	2.3	2.8	4.3
Vegetables and tubers	12.5	11.2	9.8	11.0	10.3	9.6
Sugar and sweets	0.3	0.7	0.8	1.0	1.1	1.5
Beverages	0.6	1.5	2.8	3.1	3.5	4.8
Meals in restaurants	1.0	2.4	5.0	7.6	10.0	16.7
Other food	2.0	2.1	2.4	2.0	1.9	1.7

Sources: Authors' calculations from LECS 5.

TABLE 26: Rice and meat intake by poverty status, 2007/8 and 2012/13

Food items	2007/8			2012/13		
	Poor	Non-poor: below twice poverty line	Non-poor: above twice poverty line	Poor	Non-poor: below twice poverty line	Non-poor: above twice poverty line
Rice (grams per person per day)	588.8	603.4	603.4	575.5	574.5	574.5
Meat (grams per person per week)	276.8	385.2	542.6	304.7	411.0	566.1
Fish (grams per person per week)	321.2	472.9	597.5	373.5	530.3	682.8
Vegetables (grams per person per week)	839.0	869.7	917.5	755.0	890.5	1,041.7
Fruits (grams per person per week)	332.7	466.8	728.0	303.4	465.0	756.0

Sources: Authors' calculations from LECS 4-5.

levels above World Health Organization international standards, protein consumption is on the low end of the acceptable range and fat intake is well below the recommended minimum. In this context, a shift away from expenditure on rice and towards meat and fish could have positive impacts on nutrition.

Summary

Poor households spend a larger share on food consumption than non-poor households which partly explains why the food poverty rate is lower than

the overall poverty rate in rural areas. The overall share of food consumption did not change between 2007/8 and 2012/13, but its expenditure composition changed, with a decline in the share of rice consumption and an increase in the share of meat and fish, even among the poor. The decline in the share of rice could reflect a wealth effect as households maintained their quantities of daily rice consumption. Rather, rice consumers experienced a wealth gain from lower prices in 2012/13 which they utilized to spend more on meat and fish instead of substituting away from these items when their relative prices rose.

Chapter 4

Assets, household living conditions and access to services

Household assets and living conditions

The increase in household consumption and reduction in poverty witnessed over the period 2007/8 and 2012/13 have been accompanied by significant improvements in household living conditions in terms of their possession of durables, housing characteristics and amenities. Ownership of consumer durables increased significantly between 2007/8 and 2012/13 (see Table 27). The proportion of households with a TV increased from 60.2 percent to 75.1 percent, electric rice cooker ownership jumped from 34.6 to 47.1 percent, motorbike ownership from 58.6 to 79.5 percent and car ownership from 8.2 to 16.4 percent of all households. The ability to communicate has also improved significantly,

with over three quarters of households owning a mobile phone in 2012/13, compared with less than half in 2007/8. More than half of poor households owned a mobile phone in 2012/13. While ownership of assets is higher among households with higher consumption, significant increases in possession of durables are observed even among households whose consumption is below the poverty line.

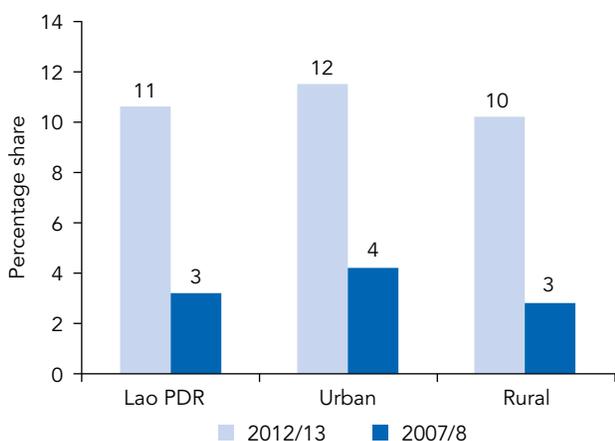
Further evidence of improvements in household welfare over the five year period can be seen in the changes in housing conditions. Lao households, including the poor, invested in more expensive and better quality housing materials. About 11 percent of households invested in construction of houses, agriculture or business buildings in 2012/13 compared to only 3.2 percent in 2007/8 (see Figure 12).

TABLE 27: Changes in household durables possession, 2007/8 to 2012/13

Household asset	Lao PDR*		Poor		Non-poor, below twice poverty line		Non-poor, above twice poverty line	
	2007/8	2012/13	2007/8	2012/13	2007/8	2012/13	2007/8	2012/13
Car	8.2	16.4	2.3	3.6	4.9	10.1	17.8	31.0
Motor bike	58.6	79.5	33.6	62.7	56.0	78.8	81.0	89.0
Bicycle	43.7	29.8	31.6	21.1	45.4	30.9	49.7	32.9
Television	60.2	75.1	35.1	50.2	58.9	74.7	80.7	88.3
Satellite disk connection	18.6	58.3	8.8	39.4	18.4	59.2	26.1	66.9
Radio, VCD	62.6	19.6	48.2	17.5	62.5	18.8	73.4	21.7
Mobile phone	48.1	76.0	21.1	56.1	44.1	75.9	74.1	86.4
Computer	2.0	7.5	0.4	1.3	0.9	3.3	4.7	16.1
Air conditioner	2.4	5.1	0.4	0.2	1.0	2.1	6.0	11.5
Refrigerator	39.9	56.4	17.8	26.6	36.1	52.0	62.1	77.2
Vacuum cleaner	0.6	1.5	0.0	0.1	0.3	0.6	1.4	3.2
Washing machine	5.7	14.8	1.3	2.4	3.4	9.0	12.5	28.6
Electric rice cooker	34.6	47.1	15.7	19.0	29.4	42.2	56.7	67.7
Steam rice cooker	88.3	76.6	87.0	68.0	87.8	76.2	89.9	81.4

Sources: Authors' calculations from LECS 4-5.

*Notes: The estimated figures presented here are based on household weights hence estimates for 2007/8 slightly differ from population weighted estimates in LECS 4 reports.

FIGURE 12: Proportion of households investing in construction by location, 2007/8–2012/13

Source: Authors calculations from LECS 4-5.

Commensurate with these investments, there was a 13.7 percentage point increase in the proportion of households with houses mainly built with bricks or concrete, from 27.5 percent in 2007/8 to 41.2 percent in 2012/13 (see Table 28). An increase of a similar magnitude was observed for the proportion of households living in houses with roofing tiles as their main roofing material and floor tiles or cement as the main floor material. Such improvements are also observed among poor households, among which 17.8 percent had houses mainly built with brick and concrete in 2012/13 compared to 12.7 in 2007/8, while 24.6 percent had houses roofed with tiles in 2012/12 compared to 14.3 percent in 2007/8. These improvements were, however, smaller than the changes observed among non-poor households.

TABLE 28: Housing characteristics by poverty status, 2007/8 and 2012/13

Housing material	2007/8				2012/13			
	Lao PDR	Poor	Non-poor, below twice poverty line	Non-poor, above twice poverty line	Lao PDR	Poor	Non-poor, below twice poverty line	Non-poor, above twice poverty line
Exterior wall major material	100	100	100	100	100	100	100	100
Brick or Concrete	27.5	12.7	23.9	43.9	41.2	17.8	36.6	59
Unbaked brick	1.3	0.3	1.4	2	41.4	50.3	44.5	32.8
Wood	48.8	50	51.1	44.4	16.6	31	18	7.4
Other material	22.3	36.9	23.6	9.7	0.8	0.8	0.9	0.8
Roof material	100	100	100	100	100	100	100	100
Wood	4.2	7.9	4.3	1.3	1.6	3.3	1.3	1
Metal sheets	61.6	50.2	64.5	65.5	57	55.7	59.5	54.5
Roofing tiles	20.2	14.3	17.6	28.7	33.5	24.6	31.3	40.9
Grass	10.7	21.1	10.7	3	4.9	11.5	4.9	1.5
Other material	3.3	6.6	2.9	1.5	3	4.9	3	2.2
Floor material	100	100	100	100	100	100	100	100
Marble or ceramic tiles	0.7	0.3	0.7	1	0.6	0.4	0.4	0.9
Floor tile or cement	30.4	14.1	26.1	49.2	44	18.5	39.5	63
Wood	55.2	58.4	60.2	45.1	45.4	60	49.6	32.6
Bamboo	7.3	15.6	6.9	1.7	4.7	10.1	5.4	1.2
Earth, clay or other	6.4	11.6	6.1	3.1	5.2	11.1	5.2	2.2

Sources: Authors' calculations from LECS 4-5.

Household access to services

Access to basic household amenities continued to improve among all households between 2007/8 and 2012/13 (see Table 29) but access remains lower among the poor compared to the non-poor. About 70.3 percent of the households had access to an improved toilet in 2012/13 compared to 59.2 percent in 2007/8 while the proportion of households with access to safe water throughout the year increased from 70.7 percent in 2007/8 to 84.1 percent in 2012/13. Access to electricity also increased, from 62.1 percent in 2007/8 to 79.8 percent in 2012/13. Rural areas saw significant improvements and accounted for the large share of the improvement in access to these services. However, access to all three amenities is significantly lower among the poor when compared to the non-poor. Access to an improved toilet is an example, where only 43.4 percent of poor households had access to an improved toilet compared 85.2 percent among those above twice the poverty line. Similar discrepancies are observed in access to electricity, but the gap is narrower for access to safe water.

Significant improvements in access to health facilities are also observed, but large rural-urban differences remain. About 52 percent of the population in 2012/13 lived in villages within 10 km of a hospital compared to only 27.3 in 2007/8, while 62.5 percent were within 10 km of a health center

in 2012/13 compared to 57.6 percent in 2007/8. However, a disaggregation by location shows that 37.3 percent of people in rural areas were within 10 km of a hospital compared to 88.5 percent in urban areas (see Figure 13).

Literacy rates were at similar levels to 2007/8. They remain higher in urban areas, at 93.9 percent, than rural areas, which have a literacy rate of 78.2 percent with a particularly large rural-urban gap among females (see Figure 21 in annex 3). The slow rate of change in this indicator reflects the fact that it takes time for improvements in educational access to translate into improved average outcomes for the population as a whole. The significant difference in literacy rates between the poor and non-poor is also unchanged relative to previous periods (see Figure 14). The literacy rate among people aged 15 years and above in 2012/13 was 83.2 percent, but only 69.9 percent among the poor compared to 86.5 percent among the non-poor. The literacy rate is significantly higher among males, at 90.7 percent, i.e. 14.7 percentage points higher than the literacy rates among females. This gap is wider among the poor, among whom the female literacy rate is 58.7 percent compared to a male literacy rate of 81.7 percent. Literacy is thus lowest among females in poor households.

There was an overall increase in net enrollment (the percentage of children of official school age who are enrolled in school) at both primary

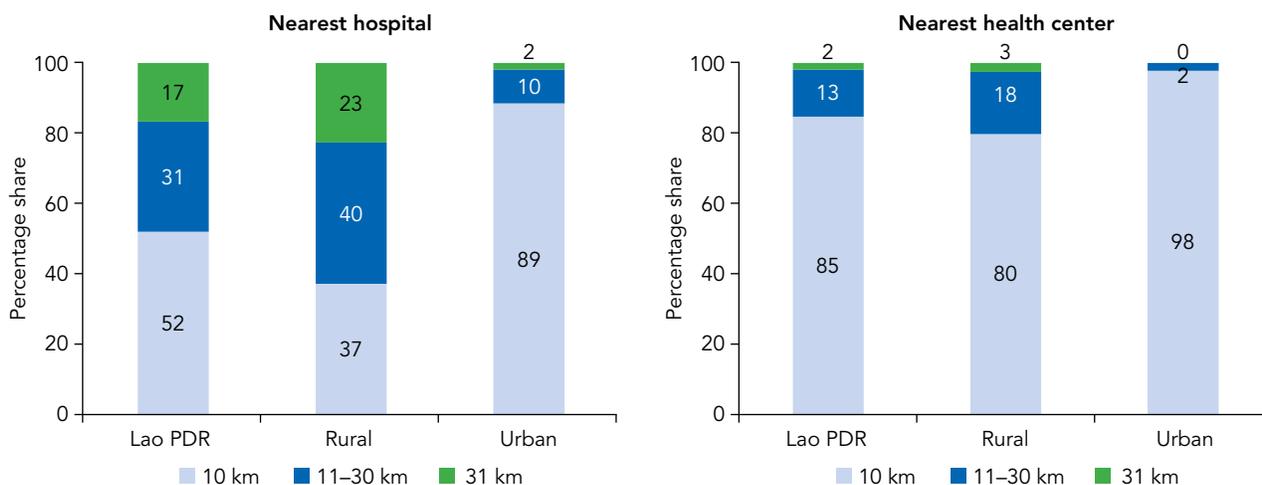
TABLE 29: Household access to improved water, toilets and electricity, 2007/8 and 2012/13

Household type	Has safe water		Has improved toilet		Has electricity	
	2007/8	2012/13	2007/8	2012/13	2007/8	2012/13
Lao PDR	70.7	84.1	59.2	70.3	62.1	79.8
Poverty status						
Poor	66.2	75.1	37.4	43.4	40.2	58.7
Non-poor, below twice the poverty line	68.5	82.8	57.5	69.4	61.7	79.7
Non-poor, at least twice the poverty line	77.7	90.3	77.9	85.2	78.8	90.9
Location						
Rural	63.3	79.8	47.4	60.1	46.6	71.5
Urban	87.5	94.0	85.7	94.0	97.0	99.0

Sources: Authors' calculations from LECS 4-5.

Note: Access to safe water is defined as having access to piped water, borehole or protected well or harvested rainwater in both the dry and wet seasons.

FIGURE 13: Distribution of access to hospitals and health centres by location type, 2012/13



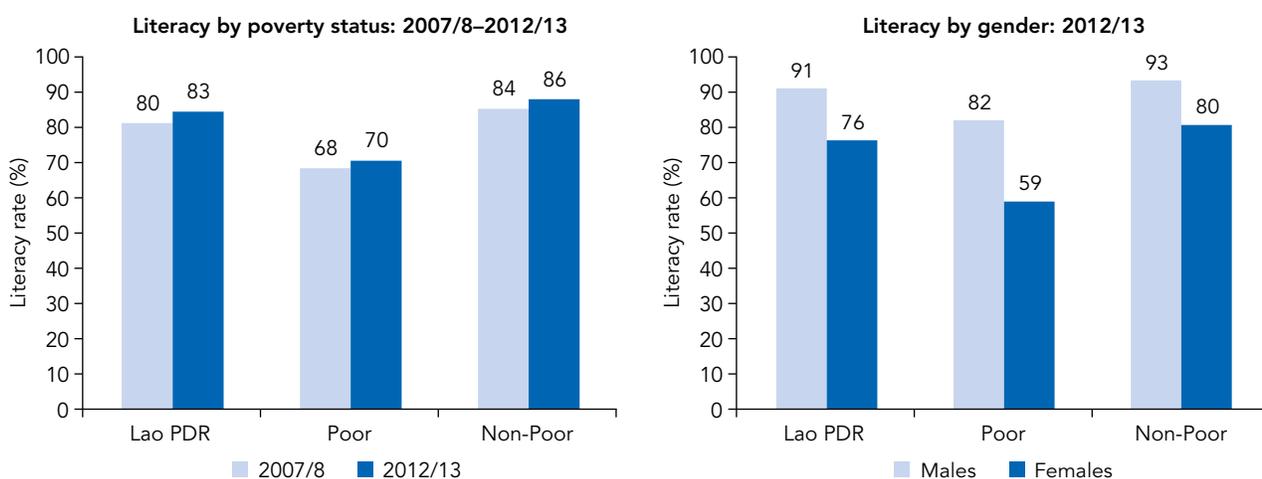
Sources: Authors calculations from LECS 5.

and lower secondary levels, with a small difference between boys and girls. However, a large gap remains between the poor and non-poor (Figure 15). Net primary school enrollment increased by around 5 percentage points among both the poor (from 70.7 to 75.3 percent) and non-poor (from 84.1 to 89.5 percent) between 2007/8 and 2012/13. Thus net primary enrollment among the non-poor remains about 14 percentage points higher than net primary enrolment among the poor. A larger gap is visible in net lower secondary school enrolment

between the poor and the non-poor. The net enrolment rate among children aged between 11 to 15 years and living in poor households in 2012/13 is 28.2 percent compared to 56.6 percent among children in the same age group living in non-poor households. Net enrolment in secondary education also increased by a smaller magnitude among the poor (by 7.7 percentage points), than among the non-poor (by 11.5 percentage points).

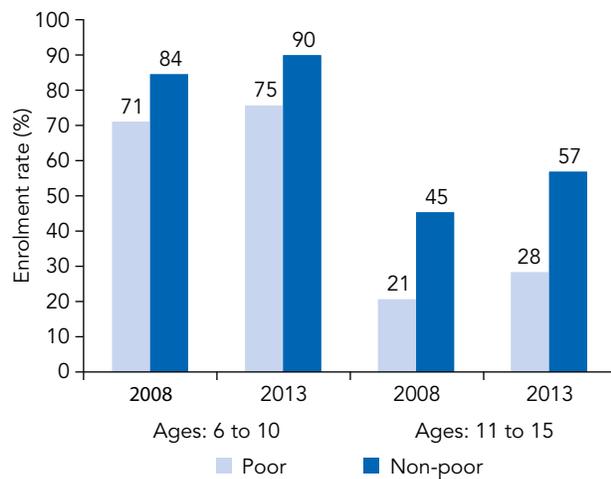
Despite the improvements noted above, net secondary enrollment is lagging. This is particularly

FIGURE 14: Literacy rates among people aged 15 years and above by gender and poverty status, 2012/13



Sources: Authors calculations from LECS 4-5.

FIGURE 15: Net enrolment rate by poverty status, 2007/8–2012/13



Source: Authors calculations from LECS 4–5.

the case in provinces like Phongsaly and Luangmantha, where poverty has fallen below the national average but net secondary enrollment rates there (at 31.1 and 37.6 percent respectively) are still among the lowest in the country (see Table 47 in annex 3). Households face multiple deprivations, and the large gap that now exists between monetary poverty and human development indicators shows that deprivations are still deep in other dimensions

of human welfare despite the dramatic changes in monetary poverty observed over the past five years.

Summary

As well as improvements in monetary indicators of poverty, the period between 2007/8 and 2012/13 has seen a rapid improvement in non-monetary aspects of household welfare. Households invested in housing and durable assets across the board, although at a slower rate among the poor than the non-poor. More households now have access to services like safe drinking water and improved toilets as well as access to electricity. Significant gains in access to services were made in rural areas, but rural-urban gaps remain. Literacy rates did not increase significantly and females continue to lag behind males, even though there are no gender gaps in enrollment. Net enrolment increased over the five year period, but remains higher among the non-poor than the poor, especially in secondary school enrollment. Because enrolment grew more slowly among the poor, the gap between the two groups widened. The general level of net secondary enrollment is still low, and a wider gap between enrollment outcomes and monetary poverty now exists in provinces that made dramatic gains in monetary poverty.

Conclusion

Poverty continues to decline in Lao PDR as consumption has increased. Over the five year period between 2007/8 and 2012/13, poverty declined by 4.3 percentage points, from 27.56 percent in 2007/8 to 23.24 percent in 2012/13. This means that poverty has declined in each of the five year periods since the first LECS survey was conducted in 1992/3. Poverty has halved between the time of this first survey and 2012/13.

Other socio-economic indicators have improved alongside these monetary welfare indicators. Household ownership of assets increased significantly, even among poor households. Marked increases in ownership of televisions, motorbikes and mobile phones are observed in both rural and urban areas. More now live in houses built with bricks/concrete and more are living in houses with floor tiles or cement floors. Access to improved toilets and electricity has increased significantly especially in rural areas, while net enrollment in both primary and lower secondary school increased among both the poor (by 8 percentage points) and the non-poor (by 12 percentage points). While improving, access to services among the poor is still low.

Nonetheless, poverty reduction and welfare improvement in general have been uneven across geographical regions and socio-economic groups. In the most recent five year period, poverty increased in the South, even though it fell in the other three regions of the country. This almost reversed the rapid decline in poverty in southern areas that had been achieved between 2002/3 and 2007/8. Poverty rates increased in three provinces (Bokeo, Champasack and Saravane), two of which are in the South, even though it declined in all other provinces. Saravane now has the highest poverty rate (49.8 percent), more than twice the national poverty rate and 8 times the poverty rate in Vientiane Municipality which has the lowest poverty rate (5.9 percent).

In contrast to the experience in the previous 5 year period, poverty declined faster and welfare

improved faster in urban than rural areas. Poverty also declined faster among the better educated than those with less than primary education—a disproportionate share of them from minority ethnic groups. Poverty remains highest among ethnic minorities, agricultural households and the less educated. Districts targeted for priority poverty interventions made significant progress, although they remain poor. Poverty declined faster (by 9.2 percentage points) in first priority districts than in second priority (1.6 percentage points) and non-priority districts (2.7 percentage points). As a result, the poverty headcount rate in second priority districts is now the same as the poverty headcount rate in first priority districts.

Because population is unevenly distributed between provinces, the poor are not concentrated only in provinces with high poverty rates, but in those where the population share is also relatively large. Savannakhet, by virtue of its large population share, accounts for 17 percent of all poor individuals, despite its moderate poverty rate. By contrast, although Bokeo has the second highest provincial poverty rate, it accounts for just 5 percent of the poor. Saravane has a high poverty rate combined with a significant population, and as a result 13 percent of the poor live there. The poor of Savannakhet, Saravane, Champasack, Luangprabang and Hua-phanh together make up 54.7 percent of the poor nationwide, and the poor of the first three close to 40 percent. These three provinces' combined share of the poor increased by 12.6 percentage points between 2007/8 and 2012/13 without a corresponding increase in the population share.

The pattern of poverty reduction over the period 2007/8 to 2012/13 contrasts with the pattern over the previous five year period, with many trends going in opposite directions. There are contrasting fortunes between farmers and wage earners, rural and urban areas and lowland and upland areas. The three provinces where poverty increased between

2007/8 and 2012/13 had experienced large declines in poverty between 2002/3 and 2007/8, for example. Similarly, poverty increased in lowland areas, mainly in areas bordering Cambodia, and declined in upland areas (except along the Thailand border) between 2007/8 and 2012/13, whereas the opposite trends were observed between 2002/3 and 2007/8. This highlights the extent of households' vulnerability. Gains in terms of poverty reduction, even ones that appear highly significant, can easily be overturned in later periods if the households or the region experience shocks or setbacks.

Rural areas and agricultural households had a slower rate of poverty than urban areas and paid wage workers between 2007/8 and 2012/13, but the opposite was true between 2002/3 and 2007/8. One notable difference between the two periods was that agriculture crop produce prices were relatively higher in 2007/8 than in 2012/13. The reversal in trends in poverty mirrors a reversal in the terms of trade against agriculture producers (mainly in lowland and rural areas) which likely played a role in constraining the rate of rural poverty reduction.

The rate of consumption growth was higher for the well off than it was for those at the bottom of the welfare distribution. Consumption growth among the bottom 20 percent was 1 percent per annum between 2007/8 and 2012/13, compared

to consumption growth of 2.4 percent per annum among the top 20 percent. The differences in consumption growth between the poor and non-poor were most evident in urban areas, where inequality slightly increased. By contrast inequality remained flat in rural areas. As a result, inequality in Lao PDR is increasingly characterized by a widening rural-urban gap and growing inequality within urban areas.

Overall, the rate of decline in poverty was lower than the rate of economic growth. The rate of per capita GDP growth translates to a growth elasticity of poverty of -0.47 , implying that poverty declined less than proportionately to economic growth. This is partly because of the slight increase in inequality, but also because, the growth rate in consumption was less than the growth rate in GDP. While the average growth rate of GDP per capita between 2007/8 and 2012/13 was 5.9 percent, the mean growth rate of household per capita consumption was 2 percent. This implies a 4 percentage point gap between the rate of economic growth and household consumption growth. That consumption growth itself was favorable to the non-poor than the poor is another contributing factor, while the high household vulnerability that led to a significant number of households falling back into poverty, as clearly demonstrated by the rise in poverty in some provinces, further slowed down the pace of poverty reduction.

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Annex 1

Poverty measurement methodology for LECS 5 in brief

The poverty line

The poverty line was established using the LECS survey conducted in 1997/98 (LECS 2) following a cost of basic needs approach. A reference poor population was defined through a two-stage iterative process and a basket of goods was defined to reflect the consumption patterns of this group. Because quantities of food consumed were not recorded in LECS 2, the value of food was first divided by the average monthly price to calculate physical quantities of food consumed. These quantities were then converted into calories consumed using calorie conversion factors. The average cost per calorie was calculated by dividing the total calorie content of the basket (by region) by total cost. This amount was multiplied by 2100 to give the food poverty line.

To set a non-food poverty line, the average ratio of food to total consumption was calculated for households with total consumption close to the food poverty line (defined as households for whom the ratio of total per capita consumption expenditure to the per capita food poverty line was between 90:100 and 110:100). The average ratio of food to total consumption ratio was estimated as 69.36% in 1997/8. This ratio was used to adjust for non-food consumption, giving a total poverty line when added to the food poverty line.

The same reference food basket was applied to set the poverty line for all regions. Only adjustments for spatial price differences are made. The cost of the Vientiane – Urban food and non-food baskets was set as a baseline for the whole country and spatial price indices were derived to adjust the poverty line for 4 different regions namely: Vientiane, North, Central and South. Each of these regions is further split into rural and urban, giving a total of 8 sub-regions. Further details on the method of spatially

adjusting the poverty line are provided under the discussion of updating the poverty line, since the same methodology has been applied in subsequent surveys.

Updating the poverty line

Lao PDR has maintained an absolute poverty line since the poverty line was determined in 1997 (LECS 2 survey). With this approach the poverty line represents the cost of an identical “basket” of goods, thus it is updated only for changes in price levels at the time of the new survey. These changes in price levels are captured using price indices based on a reference poverty basket intended to correspond to the consumption patterns of the poor. The food basket was the same reference basket used to construct the food poverty line. The original non-food poverty line was set as a fixed ratio of food consumption therefore a new non-food basket was defined for the purpose of updating for price changes, using the same method applied to derive the reference food basket. The total poverty basket for updating prices comprised 35 food items and 28 (now 21) non-food items shown in Table 30 below.

The process of updating the poverty line for price changes is done in three steps: i) a temporal between survey price adjustment, ii) adjustments for spatial price differences and iii) temporal within survey price adjustments.

Between survey temporal adjustment: The Vientiane-Urban poverty line is first updated using a rate of inflation calculated for urban Vientiane only. Food inflation and non-food inflation are each calculated from a Laspeyres price index based on the reference food and non-food baskets described above and used separately to inflate the costs of the food and non-food baskets. The inflated costs of food and non-food baskets are then aggregated to produce the poverty line

TABLE 30: Reference basket for the poverty line

Food Item	Share	Non-Food Item	Share
Glutinous rice	0.519390	Beer Lao	0.004707
Lao rice	0.137142	Sticky rice alcohol	0.000000
Bread	0.001167	Cigarette, local (red A)	0.201748
Readymade and other noodles	0.003647	Pipe tobacco	0.080699
Noodle, vermicelli	0.001751	Jeans	0.006725
Biscuits	0.000000	Other trousers	0.067249
Pork	0.031951	Shirt	0.053800
Beef	0.040121	Thai skirt	0.047075
English chicken	0.053836	Lao skirt	0.033625
Fresh fish	0.140206	Shirt	0.013450
Canned and frozen fish	0.001897	Shorts, school uniform shorts	0.020175
Dried fish	0.001313	Trousers	0.033625
Fermented fish	0.002334	Skirt	0.013450
Condensed milk	0.000875	Shirt	0.026900
Chicken egg	0.002918	Foot wear	0.100874
Bananas	0.001459	Charcoal	0.020175
Papayas	0.000729	Bus fares	0.073974
Oranges	0.000146	Taxi fares	0.073974
Beans	0.001313	Lao's detergent	0.060525
Cabbage	0.001313	Note book	0.047075
Morning Glory	0.000292	Soap ' LUX '	0.000000
Cucumber	0.002480	Shampoo	0.006725
Dried Onions	0.002918	Toothpaste	0.013450
Tomatoes	0.000438		
Spinach	0.000029		
Fresh chilli	0.007149		
Bamboo	0.001459		
Dried chilli	0.018383		
Sugar	0.002188		
Sweets	0.002043		
Salt	0.004669		
Fish sauces	0.000875		
Spices and seasoning	0.012839		
Sausages	0.000000		
Soft drinks	0.000729		
ALL FOOD	1.000000	ALL NON FOOD	1.000000

in 2012/13 prices for Vientiane – Urban. The temporal between survey price adjustment is thus given by:

$$z_{vt} = \left(z_{v,t-1}^F * \left(\frac{\sum_{i=1}^{N_f} s_{0i} p_{vt,i}}{\sum_{i=1}^{N_f} s_{0i} p_{v0,i}} \right) + z_{v,t-1}^{NF} * \left(\frac{\sum_{i=1}^{N_{nf}} s_{0i} p_{vt,i}}{\sum_{i=1}^{N_{nf}} s_{0i} p_{v0,i}} \right) \right) = \sum_k z_{v,t-1}^k * \left(\frac{\sum_i^{N_k} s_{0i} p_{vt,i}}{\sum_i^{N_k} s_{0i} p_{v0,i}} \right) \quad (1)$$

where $k \in [F, NF]$ with F denoting the food basket, NF the non-food basket, s_{0i} is the fixed share of item i in the basket, v is Vientiane- Urban, t is year of survey thus $p_{v,t,i}$ is price of item i during period t in Vientiane-Urban. The subscript 0 represents the base year (i.e. 1997/98 when the poverty basket and the corresponding poverty lines were set).

Spatial price adjustment: The updated Vientiane-Urban poverty line is adjusted to create sub-region specific poverty lines using spatial price indices for urban and rural areas of each of the 4 regions. The spatial adjustment indices are calculated as a proportion of the nominal cost of the food baskets and the non-food baskets for each sub-region in 2012/13 prices relative to the updated food and non-food poverty lines for Vientiane – Urban respectively. The sub-region specific poverty line is thus calculated as the sum of two components i) the Vientiane-Urban food poverty line deflated by the sub region's food spatial adjustment index and ii) the Vientiane-Urban non-food poverty line deflated by the sub region's non-food spatial adjustment index. The spatial adjustment is done in accordance to equation 2, where subscript r represents the sub-region thus z_{rt} is the spatially adjusted poverty line for region r in survey period t .

$$z_{rt} = \sum_k z_{v,t-1}^k * \left(\frac{\sum_i^{N_k} s_{0i} p_{vt,i}}{\sum_i^{N_k} s_{0i} p_{v0,i}} \right) \left(\frac{\sum_i^{N_k} s_{0i} p_{rt,i}}{\sum_i^{N_k} s_{0i} p_{vt,i}} \right) \quad (2)$$

Within survey temporal price adjustment: Data collection in the LECS spans a period of 12 months. The spatially adjusted poverty line is therefore adjusted for price differences across different months of the data collection period using a monthly price deflator for Vientiane Urban. This results in 96 spatially adjusted nominal monthly poverty lines (with 12 different monthly values for each

of the 8 sub-regions). Equation 3 below shows z_{rtm} , the fully adjusted poverty line for sub region r in survey period t , where $m = 1, 2, \dots, M$ is month of survey and P_{vm} is monthly price index for Vientiane-Urban during the period of the survey.

$$z_{rtm} = \left(\frac{1}{M} \sum_m P_{vm} \right) \sum_k z_{v,t-1}^k * \left(\frac{\sum_i^{N_k} s_{0i} p_{vt,i}}{\sum_i^{N_k} s_{0i} p_{v0,i}} \right) \left(\frac{\sum_i^{N_k} s_{0i} p_{rt,i}}{\sum_i^{N_k} s_{0i} p_{vt,i}} \right) \quad (3)$$

Choice of deflators and price data sources for updating the LECS 5 poverty line.

There are three potential sources of price data for updating the poverty line. These are i) unit prices from the diary, ii) the village price survey and iii) CPI prices. The village price survey tool collects data on specific standardized items, in standardized quantities and is conducted in villages where the household questionnaire is fielded, in contrast to the CPI data, which are collected in urban areas in selected provinces only. The unit prices from the diary are used to obtain prices for standardized food items (except fish) and village prices for non-standardized items in the diary i.e. all non-food items and fish, to derive both the indices used for the between survey adjustment and spatial price adjustment. The CPI data, which has a series of monthly prices for exactly the same locations, was used for within survey temporal price deflation

The rationale for this choice was that diary prices are associated with actual household consumption behavior, hence their use for food consumption when items are properly defined and have a narrow quality range. Unfortunately changes in diary unit prices are also driven by changes in quality of items consumed. Diary price variations sometimes reflect a shift in preferences as people's welfare varies instead of reflecting a variation in the price of goods of the same quality across space and time. This was likely the case for non-food items like clothes which have a broad quality range and where large jumps in unit prices were also observed (e.g. the average diary unit price for the Lao Skirt price ranged from 20, 000 kip to 200, 000kip). A similar effect could have impacted the price of fish where large regional

differences in the diary unit prices were also observed. The fish category in the diary is too broad, covering so many types of fish so that observed regional variations in the unit price of fish may be attributed to different fish species being dominant in different areas. Village prices, which track the prices of standardized items, were therefore used for updating the cost of the non-food basket and fish, as these would more accurately reflect changes in the cost of the same items. The median prices for the sub region were used in both cases (diary unit values and village prices).

For the same reasons explored above, the prices from the same combination of diary and village price survey data were used to calculate the price of the basket for rural and urban areas of each region, which were then compared to the Vientiane-Urban prices to adjust the poverty line. It should be noted that this differed from the LECS 4 method, which adjusted only the urban poverty lines by region, and then used the national urban-rural price differential to adjust the rural poverty lines. This deviation was justified by the superior quality and availability of price data in the LECS5 survey, making it inappropriate to assume a constant urban-rural differential when real data could be used.

The CPI data for Vientiane are used to adjust for temporal inflation within the survey period. The Vientiane – Urban CPI data are used because the data for Vientiane-Urban are considered the most reliable and temporal patterns in prices in the capital are likely to be mirrored across the country, even if price levels differ. The price adjustment was made using the cost of food and non-food baskets to adjust the respective poverty lines using the CPI prices. This was consistent with the LECS4 methodology.

The combination of the diary and village prices used in LECS 5 was also previously used in updating the poverty line for the LECS 4, but only village prices were used for updating the poverty line in LECS 3. Though consistent between LECS 4 and LECS 5, adjustment for within survey price inflation was done differently to LECS 3 which was based on the monthly price of glutinous rice for Vientiane-Urban instead. The justification then was that glutinous rice is the main item consumed by households, particularly poor households, and that the rate of

substitution away from glutinous rice in response to price changes is small—implying that changes in the price of glutinous rice have a large and unmitigated effect on poor households. However, the LECS 5 data reveal that glutinous rice has continued to fall as a proportion of total food consumption. This means that households are increasingly affected by other price changes too. A compounding factor is that the monthly pattern of rice deviated from the overall trend in other prices, further strengthening the case for using the CPI prices for the entire poverty basket instead of glutinous rice only. The choice of deflators and price sources that have been used to update the poverty line over time are presented in Table 31 below.

The consumption aggregate

Lao PDR followed common practice in developing countries in using a consumption-based welfare measure. This is reflected in the LECS questionnaire where detailed information on household consumption expenditure is recorded. A household diary is the principal instrument for collecting expenditure and consumption data on a detailed set of food and non-food items. The diary is filled daily by household members, assisted as necessary by enumerators. All consumption is recorded for the period of one month, including both cash expenditure and the in-kind value of own produced items consumed. Additional information on purchases of certain high value or durable items is collected for the last 12 months.

Food consumption

Food consumption in the consumption aggregate includes food items purchased from the market, own food consumption, food gifts received by the household and meals in restaurants and hotels purchased by household members. Households recorded their self-valuation of both in-kind food receipts and own consumption in the diary, along with the purchase values of food items purchased from the market. Following previous practices, these self-valued consumption expenditures have been used in generating own food consumption and in-kind food expenditure.

TABLE 31: Methodology for constructing and updating poverty lines: LECS1–LECS5

	LECS 1 Creating Poverty line	LECS 2–LECS 1 Updating poverty line (backwards)	LECS 2–LECS 3 Updating poverty line	LECS 3–LECS 4 Updating poverty line	LECS 4–LECS 5 Updating poverty line
Food basket Items	35 items	35 items	33 item ^a	33 items	33 items
Non-food basket Items	N/A (calculated based on ratio of food to total consumption for reference poor group.)	28 items	21 item ^b	21 items	21 items
Prices sources for updating poverty line	N/A	Average CPI inflation rates from LSB and Central Bank	Village price survey	Village and diary prices	Village and diary prices
Prices sources for spatial indices	CPI data for cities	Spatial price indices for LECS2	Village price survey	Village and diary prices	Village and diary prices
Urban-rural deflation	LECS2 village data on rice prices	Assumed same rate of inflation rural as urban	N/A (spatial price indices separate for rural-urban)	N/A (spatial price indices separate for rural-urban)	N/A (spatial price indices separate for rural-urban)
Monthly inflation price source	N/A (spatial price indices calculated separately for each month)	Unclear from documentation	Inflation in weighted poverty basket using CPI prices	Inflation in weighted poverty basket using CPI prices	Inflation in weighted poverty basket using CPI prices

a Food items excluded for LECS3 and LECS4 but included for LECS2–LECS1 are coffee and chocolate drink. Biscuits and sausages are also included in the list given by Kakwani et al (2002), but they have a weight of zero, so are not counted here.

b Non-food items excluded for LECS3 and LECS4 but included for LECS2–LECS1 are, water charges, electricity, kerosene, firewood, blanket, light bulb, and medicines. "Beer heneiken", sticky rice alcohol and soap "lux" are also included in the list given by Kakwani et al (2002), but they have a weight of zero, so are not counted here.

Non-food consumption

Non-food consumption items in the diary comprise education expenses, medical expenses, clothing and footwear, housing fuel and utilities, transportation and communication costs, personal care, recreation, accommodation in hotels and lodges, alcohol and tobacco, expenses on traditional and cultural activities, household sundries and operating expenses and other miscellaneous items. Two issues deserve particular mention due to their non-conventional treatment or exclusion:

Durables: These are selectively included using a non-standard methodology. User costs of most lumpy durables are excluded from consumption expenditure (specifically beds, dining and lounge suites, stove with oven, fridge, air conditioners, sewing machines, washing machines, cars & vans, motorcycles, TVs, VCRs, and computers). The user cost for others are included with an implicit assumption of a single year lifespan (these items are: tables and chairs, cupboards, desks and sideboards, stools

and benches, carpets, lamps, rugs, mats, pictures, stoves (non-electric), irons, electric fans, bicycles, watches, jewelry, radio or cassettes, camera, other photographic and musical equipment, cellular phone and repairs of such items). For items included in the aggregate, their purchase and repair costs obtained from the annual durable purchase module is divided by 12 and included in the monthly consumption expenditure. Any purchases of these durables recorded in the household diary are discarded. Variables like the age or purchase value of durables currently possessed by households have not been captured in the LECS with the exception of LECS 5 when a question on the age of the durables was included. Furniture has always been excluded in the durables possession modules. This paucity of additional information on durables increases the challenge of imputing the user cost of some durables for inclusion in the consumption aggregate.

Housing: Housing rent payments (or their equivalent) are totally excluded from the consumption

aggregate. One reason for their exclusion is the absence of a rental market in Lao PDR. Only 114 out of 8213 non-missing observations in LECS 5 data reported being tenants, for example. The LECS surveys have a question recording self-reported implied rents, but this has never been used in the consumption aggregate.

Adjustments to the consumption aggregate

Treatment of education expenses: Some households (149 out of 8226) recorded education expenses in the diary, yet none of the members of the household were reported to be in school and zero education expenditures were recorded in the education module. A possible explanation concerns the definition of a household member applied in LECS surveys. Only usual household members are included, thereby excluding children who study in boarding schools, temporarily reside on campus or with relatives during school days, but whose education expenses are paid for by the household. While such expenditures are legitimate expenses for inclusion in the consumption aggregate, persons associated with the expenditure are excluded from the household size count. This means that consumption per capita would be overstated if these expenses were included. Accordingly, education expenses reported in the diary are excluded if none of the household members are reported to be in school.

Treatment of meals in restaurants and hotels: An inspection of the diary revealed that households recorded meals prepared outside the household if i) they bought meals for themselves ii) they bought meals for someone or iii) someone bought meals for them. The first category is always included in the consumption aggregate but only one of the second and third categories should be included in the aggregate to avoid double counting. For this purpose, meals a household member buys for someone else are treated as a cost of hosting and included in the consumption aggregate. This is done because such a cost would be included in the consumption aggregate if the household entertained at home instead. Meals bought for a household member by someone (akin to feasting at a party) were thus excluded from the consumption aggregate.

Adjustment for rice: Rice is the staple food in Lao PDR, but some households (349, more than a third of them in rural areas) did not record any consumption of rice in the diary. This could be attributed to the nature of the diary. Only consumption of stocks from own production are recorded while full market expenditures are recorded irrespective of the related consumption period. Thus consumption of stocks from market purchases is not recorded to avoid double counting. Stocks at the beginning and end of diary periods are not recorded. It is possible that a household consumed rice from a previous month's bulk purchase and omitted the entry from the diary as expected. Without information on stock depletion, this cannot be verified. It could also just be a reporting error. Following previous practice, rice consumption for households with zero rice consumption was imputed using the household's reported rice consumption per capita in the nutrition module, to define a ratio of the household rice consumption to the regional (disaggregated by urban/rural) average and multiplying this ratio to the respective regional rice expenditure per capita, then multiplying this by the household size.

Per capita normalization: Per capita normalization is used to derive individual consumption needs. This rules out scale economies in consumption and treats all members as equal consumption units implying that household needs increase proportionally with household size. Use of per capita normalization was attributed to the absence of credible adult equivalence parameters for Lao PDR (Kakwani et al., 2002). This practice was applied to LECS 5 to be consistent with previous LECS surveys and because it allows for simple and transparent interpretations (Kakwani et al., 2002; World Bank, 2006).

Normalization of the consumption aggregate: The diary is a 30 day diary in principle but it was implemented as a full month diary in practice, meaning that households interviewed in February completed the diary in 28 days while those interviewed in a 31 day month completed the diary in 31 days. The consumption aggregate is normalized to a 30 day period based on the number of days in the month when the interview took place (i.e. consumption for people interviewed in July would be multiplied by (30/31) for example).

Price deflation: The nominal consumption aggregate is deflated to 2002/3 real prices by multiplying the consumption aggregate by the ratio of the national poverty line in 2002/3 (which is simply the weighted mean of the nominal poverty lines in 2002/3) and the nominal poverty line (adjusted for spatial and temporal price adjustments for the different months of data collection) in LECS 5.

Let $w_{j,rtm}$ be the survey weight for household $j = 1, 2, \dots, H$ and define \bar{z}_t , the mean poverty line in period t is given by:

$$\bar{z}_t = \left(\frac{\sum_j^H w_{j,rtm} z_{rtm}}{\sum_j^H w_{j,rtm}} \right) \quad (4)$$

The spatially and within survey temporally adjusted per capita consumption aggregate ($RPCA_{jt}$) is given by equation 5 below, where $PCA_{j,rtm}$ is the nominal per capita consumption for a household j in region r interviewed during month m of survey period t .

$$RPCA_{jt} = PCA_{j,rtm} * \left(\frac{\bar{z}_t}{z_{rtm}} \right) \quad (5)$$

Therefore real per capita consumption in period t expressed in base year prices is defined as:

$$RPCA_{j0} = PCA_{j,rtm} * \left(\frac{\bar{z}_t}{z_{rtm}} \right) * \frac{\bar{z}_0}{\bar{z}_t} = \quad (6)$$

$$RPCA_{jt} * \frac{\bar{z}_0}{\bar{z}_t}$$

In deriving the poverty estimates, one can use i) nominal per capita consumption $PCA_{j,rtm}$ and the nominal poverty line z_{rtm} , ii) the spatially and within survey temporally adjusted per capita consumption aggregate ($RPCA_{jt}$) and its corresponding poverty line \bar{z}_t or iii) real consumption per capita in base year prices $RPCA_{j0}$ and the poverty line in that base year \bar{z}_0 . Distributional comparisons and consumption growth across surveys require a fully deflated consumption aggregate, hence the deflation of the consumption aggregate to 2002/3 prices using equation 6 (substituting \bar{z}_{2003} for \bar{z}_0).

Annex 2

Sensitivity analysis

Confidence intervals of poverty estimates

Poverty estimates in Lao PDR, like most other countries, are generated from survey data. This means that poverty estimates presented in this report are sample statistics which estimate the true poverty rates with some error as determined by the sampling design. The extent of uncertainty

from sampling error for the poverty headcount rate is presented in Table 32 which shows the poverty headcount rate and its 95 percent confidence interval by region and time period. This allows for inference of the statistical significance of differences in poverty estimates across time or regions.

TABLE 32: Confidence intervals (95 percent) for poverty headcount rates by region, 2012/2013

Location	2002/3			2007/8			2012/13		
	Poverty headcount rate	Confidence interval		Poverty headcount rate	Confidence interval		Poverty headcount rate	Confidence interval	
		Lower bound	Upper bound		Lower bound	Upper bound		Lower bound	Upper bound
Lao PDR	33.5	32.3	34.7	27.6	25.4	29.8	23.2	20.8	25.7
Rural	37.6	36.2	39.0	31.7	29.0	34.4	28.6	25.6	31.7
Urban	19.7	17.4	22.0	17.4	14.0	20.7	10.0	7.5	12.5
Region									
Vientiane	16.7	13.6	19.8	15.2	11.4	19.1	5.9	3.4	8.4
North	37.9	35.9	40.0	32.5	28.3	36.7	25.8	21.6	30.0
Center	35.4	33.2	37.5	29.8	25.8	33.8	23.3	19.1	27.5
South	32.6	30.0	35.2	22.8	18.4	27.3	29.2	23.4	35.1
Sub region									
Vientiane Rural	20.2	13.8	26.5	15.2	7.5	22.8	7.5	2.2	12.9
Vientiane Urban	15.6	12.0	19.2	15.3	10.9	19.7	5.5	2.7	8.3
North Rural	39.1	36.9	41.4	36.5	31.7	41.3	29.9	25.1	34.7
North Urban	30.6	25.1	36.1	14.6	10.0	19.2	8.9	5.3	12.5
Center Rural	39.0	36.6	41.4	33.5	28.7	38.2	26.9	21.8	32.0
Center Urban	20.1	15.7	24.5	22.2	15.4	29.0	12.8	7.2	18.4
South Rural	35.5	32.7	38.4	25.5	20.6	30.5	32.2	25.7	38.7
South Urban	12.8	7.2	18.5	11.3	4.4	18.3	16.1	7.4	24.9

Sources: Authors' calculations from LECS 4-5.

TABLE 33: Confidence intervals (95 percent) for poverty headcount rates by province, 2002/3–2012/13

Province	2002/3			2007/8			2012/13		
	Poverty headcount rate	Confidence interval		Poverty headcount rate	Confidence interval		Poverty headcount rate	Confidence interval	
		Lower bound	Upper bound		Lower bound	Upper bound		Lower bound	Upper bound
Lao PDR	33.5	32.3	34.7	27.6	25.4	29.8	23.2	20.8	25.7
Vientiane Municipality	16.7	13.6	19.8	15.2	11.4	19.1	5.9	3.4	8.4
Phongsaly	50.8	45.2	56.3	46.0	31.1	60.9	12.3	5.2	19.4
Luangnamtha	22.8	18.0	27.6	30.5	20.7	40.2	16.1	9.4	22.9
Oudumxay	45.1	39.2	51.0	33.7	20.3	47.2	30.1	18.6	41.6
Bokeo	21.1	16.5	25.7	32.6	16.9	48.3	44.4	24.5	64.3
Luangprabang	39.5	34.2	44.8	27.2	19.1	35.2	25.5	17.0	33.9
Huaphanh	51.5	46.8	56.2	50.5	39.5	61.6	39.2	25.3	53.0
Xayabury	25.0	20.9	29.2	15.7	9.2	22.1	15.4	10.4	20.4
Xiengkhuang	41.6	35.9	47.3	42.0	29.3	54.8	31.9	20.0	43.7
Vientiane	19.0	15.3	22.7	28.0	19.4	36.6	12.0	6.4	17.5
Borikhamxay	28.7	23.2	34.2	21.5	12.2	30.8	16.4	10.5	22.3
Khammuane	33.7	29.3	38.1	31.4	22.6	40.2	26.4	16.8	36.1
Savannakhet	43.1	39.1	47.1	28.5	22.0	34.9	27.9	19.5	36.3
Saravane	54.3	49.8	58.9	36.3	26.2	46.5	49.8	38.6	61.1
Sekong	41.8	34.8	48.8	51.8	35.1	68.5	42.7	29.9	55.4
Champasack	18.4	14.6	22.2	10.0	5.5	14.5	19.9	9.0	30.7
Attapeu	44.0	37.3	50.7	24.6	14.8	34.5	8.9	3.0	14.9
Xaysomboun Special Region	30.6	23.2	38.1						

Sources: Authors' calculations from LECS 3-5.

Sensitivity of poverty estimates to choice of price sources and consumption aggregate adjustments

Sensitivity checks on the impact of the various adjustment choices are shown in Table 34 below. The poverty estimates from the preferred methodology is italicized and bolded. For the same price sources, adjustments made to the consumption aggregate as described in Annex 1 did not result in substantial changes in the poverty estimates. The choice of the source of prices mattered more. Very small changes

in poverty over time (only 1 percentage point decline from LECS 4) are implied when only dairy prices are used across the board or when the dairy price for fish is used

Impact of partial inclusion of durables

The consumption aggregation methodology excludes a significant number of durables. It has been observed in other countries that after a certain level of development, households start to spend more on household assets and improving their housing conditions as their welfare improves instead of simply spending more on food (World Bank, 2013). Thus a

TABLE 34: Sensitivity of poverty estimates to choice of price sources and consumption aggregate adjustments

Consumption aggregate adjustments	Price sources			
	Village Prices (All items)	Diary Prices (All items)	Village (Non-food) & Dairy (All food)	Village (Non-food) & Dairy (Food except fish)
Fully adjusted consumption per capita	0.235	0.278	0.270	0.232
No rice adjustment	0.239	0.282	0.274	0.237
No education adjustment	0.234	0.277	0.270	0.232
No days normalization	0.230	0.268	0.263	0.225
Education adjustment only	0.234	0.272	0.267	0.230
Rice adjustment only	0.230	0.267	0.263	0.225

Sources: Authors' calculations from the LECS 5.

TABLE 35: Comparison of inequality by inclusion of durables, 2007/8–2012/13

	Durables included		No durables included	
	2007/8	2012/12	2007/8	2012/12
Lao PDR	36.30	37.13	35.04	36.17
Rural	33.82	33.24	33.05	32.52
Urban	37.33	37.97	35.80	37.51

Sources: Authors' calculations from LECS 4–5.

failure to take into account the use value from durables in such circumstances can underestimate both consumption growth and inequality.

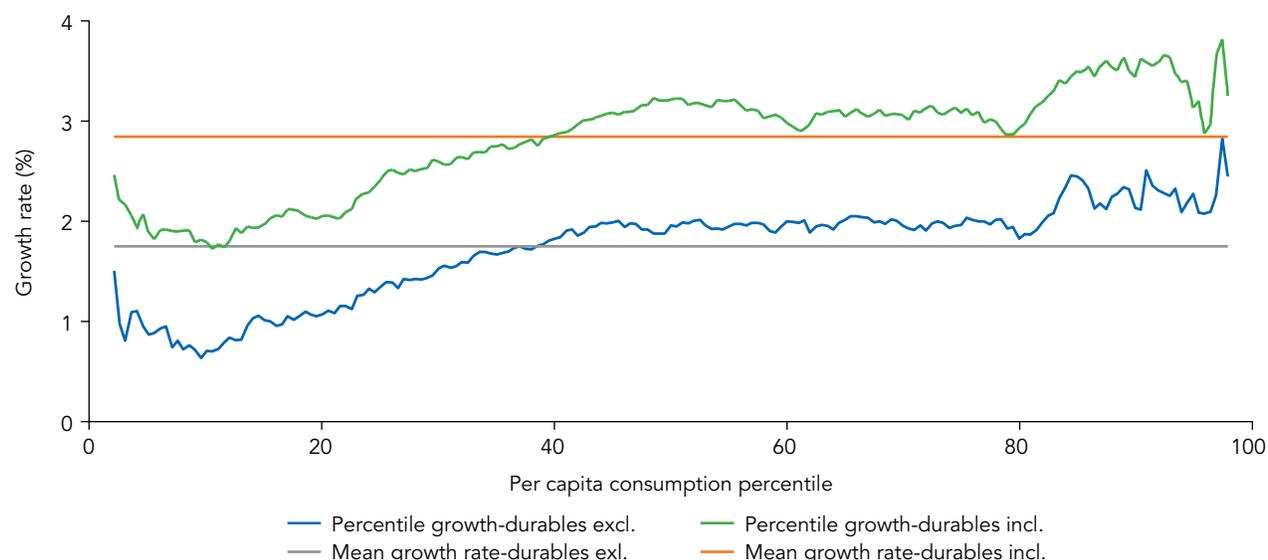
The analysis in chapter 4 showed a marked increase in both household ownership of durables and investment in housing. The impact of such a change on consumption growth has been simulated by including the use value of additional durables in the consumption aggregate for 2007/8 and 2012/13 and comparing the percentile growth rate in consumption with and without the additional durables. The use value of each of the additional durables in 2012/13 was estimated by first running a median regression on the log of the current value of the durable on a constant and its age, to obtain an implicit depreciation rate (δ_i). The stream of consumption from each durable (D_i) is then obtained by multiplying this implicit depreciation by the value of the durable in the previous period. However, only the

current value of the durable $X_{i,t}$ is captured in the data. The flow of consumption from each durable is thus estimated as $D_i = \delta_i * X_{i,t} / (1 - \delta_i)$. The first step of estimating implicit depreciation rates (δ_i) is not feasible in LECS 4 because the data on the age of the assets were not captured. The estimated values of implicit depreciation rates (δ_i) from the LECS 5 are imposed on the LECS 4 data instead and used in the second step of obtaining the flow consumption from each durable based on the reported value of each asset in LECS 4.

For all levels of the welfare distribution, the simulated consumption growth rate in per capita consumption are higher than the growth rate in the consumption aggregate when the additional durables are not included. As a result, the mean growth rate increases to 2.87 percent when additional durables are included, compared to 1.72 without them. However, a similar pattern of growth by consumption distribution is observed, with or without the additional durables (Figure 16). The magnitude of inequality is only slightly higher (a Gini 37.13 compared to 36.17 without the additional durables) and no big change in the level of inequality is observed.

Sensitivity of poverty to changes in the poverty line

Poverty estimates in Laos are very sensitive to the poverty line so that an increase in the poverty line results in a more than proportionate change in the

FIGURE 16: Comparison of per capita consumption growth by inclusion of durables, 2007/8–2012/13

Sources: Authors calculations from LECS 4-5.

poverty rate (see Table 36). A change in the poverty line by 5 percent would result in a higher poverty estimate by more than 12 percent in each of the three surveys for example. This sensitivity is symmetrical. Thus the magnitude of increase in the poverty rate

when the poverty line increases by a fixed proportion is similar to the magnitude of decline in poverty when the poverty line is lower by the same proportion. The sensitivity of the poverty estimates is similar for both the LECS 4 and LECS 5, even for large changes.

TABLE 36: Sensitivity of poverty headcount rate to changes in the poverty line, 2002/3–2012/13

Percentage change	2003		2008		2013	
	Poverty headcount rate	Change from actual (%)	Poverty headcount rate	Change from actual (%)	Poverty headcount rate	Change from actual (%)
Actual	33.5	0.0	27.6	0.0	23.2	0.0
+5%	37.6	12.2	31.1	12.9	26.4	13.4
+10%	41.3	23.3	34.5	25.1	29.2	25.7
+20%	47.8	42.7	41.5	50.5	34.9	50.2
-5%	30.0	-10.6	24.0	-12.9	20.4	-12.3
-10%	25.9	-22.6	20.4	-26.0	17.6	-24.3
-20%	18.2	-45.7	14.4	-47.9	12.4	-46.7

Sources: Authors' calculations from LECS 4-5.

Annex 3

Additional tables and figures

TABLE 37: Other measures of poverty, 2002/3–2012/13

Location	Sen Index				Sen-Shorrocks-Thon Index				Watts Index			
	2003	2008	2013	Change*	2003	2008	2013	Change*	2003	2008	2013	Change*
Urban	0.094	0.084	0.052	-0.032	0.076	0.066	0.045	-0.020	0.049	0.043	0.029	-0.014
Rural	0.178	0.157	0.139	-0.018	0.162	0.140	0.123	-0.016	0.116	0.099	0.085	-0.014
Lao PDR	0.163	0.139	0.119	-0.020	0.144	0.119	0.102	-0.017	0.100	0.082	0.069	-0.014

Sources: Authors' calculations from LECS 3–5.

*Notes: The change is between 2007/8 and 2012/13.

TABLE 38: Elasticity of poverty with respect to consumption, 2002/3–2012/13

Location	Poverty Headcount Rate				Poverty Gap				Squared Poverty Gap			
	2003	2008	2013	Change*	2003	2008	2013	Change*	2003	2008	2013	Change*
Urban	-2.91	-3.14	-1.74	1.40	-3.17	-3.29	-2.88	0.42	-3.58	-3.22	-3.27	-0.05
Rural	-1.89	-2.23	-2.28	-0.06	-2.72	-2.65	-2.75	-0.11	-3.11	-2.94	-3.14	-0.21
Lao PDR	-2.03	-2.39	-2.21	0.18	-2.77	-2.75	-2.77	-0.02	-3.16	-2.98	-3.16	-0.18

Sources: Authors' calculations from LECS 3–5.

*Notes: The change is between 2007/8 and 2012/13.

TABLE 39: Elasticity of poverty with respect to the inequality, 2002/3–2012/13

Location	Poverty Headcount Rate				Poverty Gap				Squared Poverty Gap			
	2003	2008	2013	Change	2003	2008	2013	Change	2003	2008	2013	Change
Urban	3.22	4.59	4.31	-0.28	5.03	5.67	6.61	0.94	6.33	6.57	7.69	1.11
Rural	0.86	1.52	1.84	0.32	2.56	3.13	3.48	0.35	3.77	4.36	4.77	0.41
Total	1.31	2.14	2.49	0.35	3.10	3.82	4.43	0.61	4.37	5.05	5.78	0.74

Notes: The figures are elasticities of FGT poverty measures (P0, P1, P2) with respect to Gini inequality index. The change of Gini is done via the following transformation of the actual income structure: 1. shift of all incomes by a fixed amount (lump-sum transfer); 2. Normalize incomes to bring the mean of the new distribution to the mean of the original distribution (tax on incomes).

TABLE 40: Poverty by household head's age, 2002/3–2012/13

Household head's age	Poverty Headcount Rate				Distribution of the Poor				Distribution of Population			
	2003	2008	2013	Change*	2003	2008	2013	Change*	2003	2008	2013	Change*
15-19	45.1	58.4	34.6	-23.8	0.3	0.3	0.3	0.0	0.3	0.1	0.2	0.1
20-24	43.5	43.8	40.7	-3.1	2.5	2.3	2.2	-0.1	1.9	1.5	1.3	-0.2
25-29	34.4	33.3	29.9	-3.4	5.8	5.8	5.5	-0.2	5.6	4.8	4.3	-0.5
30-34	37.2	35.0	32.2	-2.8	11.4	11.1	11.3	0.2	10.3	8.8	8.2	-0.6
35-39	36.2	31.7	25.5	-6.2	17.8	14.7	13.0	-1.7	16.5	12.8	11.9	-0.9
40-44	31.4	27.9	22.2	-5.7	16.4	16.3	13.0	-3.3	17.5	16.1	13.6	-2.5
45-49	30.7	24.7	22.0	-2.7	14.6	15.6	14.7	-0.9	16.0	17.4	15.5	-1.9
50-54	29.6	23.8	19.0	-4.9	10.3	12.2	12.1	-0.1	11.7	14.1	14.8	0.7
55-59	34.5	23.3	20.3	-2.9	7.5	8.4	10.4	2.1	7.3	9.9	11.9	2.0
60-64	33.0	26.3	23.3	-3.1	5.5	5.7	8.1	2.4	5.6	5.9	8.1	2.1
65+	35.3	24.8	21.1	-3.7	7.7	7.7	9.3	1.6	7.3	8.6	10.2	1.7
Lao PDR	33.5	27.6	23.2	-4.3	100.0	100.0	100.0	0.0	100.0	100.0	100.0	0.0

Sources: Authors' calculations from LECS 3-5.

*Notes: The change is between 2007/8 and 2012/13.

TABLE 41: Poverty headcount rate by sub-region and ethnicity, 2002/3–2012/13

Region	2003		2008		2013		Change: 2008-2013	
	Non-LaoTai	LaoTai	Non-LaoTai	LaoTai	Non-LaoTai	LaoTai	Non-LaoTai	LaoTai
Vientiane Rural	-	19.6	-	14.4	-	5.5	-7.6	-9.0
Vientiane Urban	-	15.8	-	15.3	-	5.5	-14.5	-9.8
North Rural	48.3	25.1	45.4	21.6	38.4	14.7	-7.0	-6.8
North Urban	57.9	19.6	19.5	12.7	14.5	6.7	-4.9	-6.0
Central Rural	56.2	31.5	51.2	24.3	44.8	20.2	-6.4	-4.0
Central Urban	22.4	19.8	52.9	19.5	23.2	10.5	-29.7	-8.9
South Rural	50.3	29.0	44.7	14.6	45.5	24.6	0.9	10.0
South Urban	31.4	11.4	33.2	9.1	20.4	15.8	-12.8	6.7

Sources: Authors' calculations from LECS 3-5.

Notes: (-) Excluded because of small cell size.

TABLE 42: Poverty headcount rate by altitude and ethnicity, 2002/3–2012/13

Ethnicity of Household head	2003			2008			2013		
	Lowland	Midland	Upland	Lowland	Midland	Upland	Lowland	Midland	Upland
Lao-Tai	23.9	27.9	29.2	16.5	25.9	19.2	15.3	16.0	14.9
Mon-Khmer	55.0	46.9	56.5	44.7	35.7	56.3	44.5	33.3	46.5
Chine-Tibet	42.2	83.8	37.5	8.9	24.2	46.4	9.4	7.1	17.5
Hmong-lu Mien	36.1	67.4	44.9	34.5	30.0	48.7	23.1	16.6	45.7
Other	63.2	61.6	14.4	33.7	22.4	15.8	13.8	70.0	42.4
Total	28.6	36.7	43.4	20.4	29.1	42.6	18.8	22.0	33.9

Sources: Authors' calculations from LECS 4–5.

TABLE 43: Regional decomposition of poverty changes between 2007/8 and 2012/13

	Absolute change	Percentage change
Change in poverty (P0)	-4.33	100.00
Total Intra-sectoral effect	-4.48	103.29
Population-shift effect	0.00	-0.06
Interaction effect	0.14	-3.24
Intra-sectoral effects:		
Vientiane Rural	-0.30	6.93
Vientiane Urban	-0.74	17.03
North Rural	-1.75	40.27
North Urban	-0.33	7.68
Central Rural	-1.59	36.64
Central Urban	-1.08	24.85
South Rural	1.12	-25.73
South Urban	0.19	-4.38

Sources: Authors' calculations from LECS 4–5.

TABLE 44: Quintile ratios, 2002/3–2012/13

Location	Quintile Ratio			
	Ninety-Ten	Eighty-Twenty	Ninety-Fifty	Fifty-Ten
2003				
Urban	76.8	62.5	55.3	48.2
Rural	71.3	55.6	49.5	43.2
Total	74.3	57.8	53.2	45.1
2008				
Urban	78.0	63.8	58.4	47.0
Rural	73.7	57.7	52.6	44.5
Total	76.3	60.4	56.1	46.0
2013				
Urban	79.3	63.0	59.3	49.1
Rural	74.6	58.2	52.2	46.8
Total	77.9	61.8	56.4	49.2

Sources: Authors' calculations from LECS 3–5.

TABLE 45: Urban-rural decomposition of poverty changes between 2007/8 and 2012/13

	Absolute change	Percentage change
Change in poverty (P0)	-4.33	100.00
Total Intra-sectoral effect	-4.33	100.00
Population-shift effect	0.00	0.00
Interaction effect	0.00	0.00
Intra-sectoral effects:		
Urban	-2.12	48.84
Rural	-2.22	51.16

Sources: Authors' calculations from LECS 4-5.

TABLE 46: Breakdown of Gini coefficient by geography, 2002/3–2012/13

	2003	2008	2013
Total	32.5	35.0	36.2
Urban / rural			
Within-group inequality	18.7	18.7	18.3
Between-group inequality	7.0	7.4	10.5
Overlap	6.8	8.9	7.3
Province			
Within-group inequality	2.6	2.7	2.9
Between-group inequality	11.4	11.8	13.2
Overlap	18.5	20.5	20.0

Sources: Authors' calculations from LECS 3-5.

TABLE 47: Net enrolment rates by gender, 2012/13

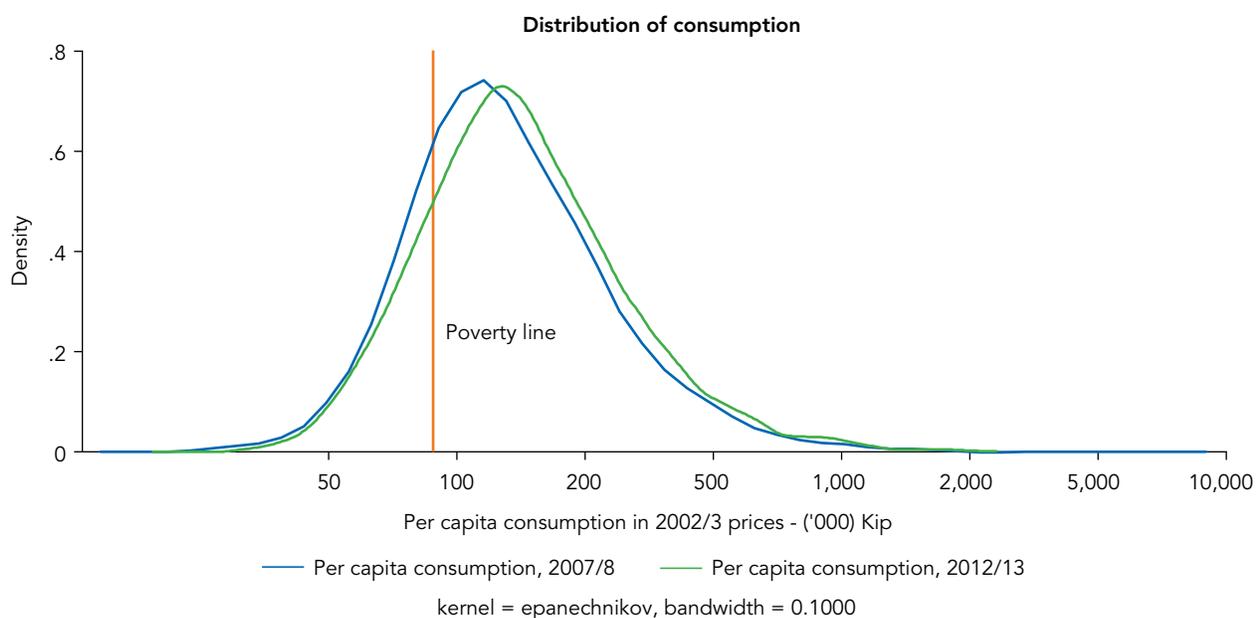
Region	Age: 6–10						Age: 11–15					
	2007/8			2012/13			2007/8			2012/13		
	Girls	Boys	All									
Lao PDR	78.5	80.3	79.5	84	85.8	84.9	36.8	39.7	38.3	50.3	48.4	49.4
Urban	88.9	90.3	89.6	91.7	92.8	92.2	61	58.2	59.6	74.7	69.5	72.2
Rural	75.6	77.4	76.5	81.9	84	83	28.3	33.1	30.7	42	41.9	41.9
North	73.9	76.2	75	85.2	85.2	85.2	28	35.4	31.7	44.7	46.8	45.8
Phongsaly	61.3	66.1	63.8	76.3	80.9	78.6	17	14.9	16	30.6	31.5	31.1
Luangnamtha	77	71.7	74.3	69.2	80.7	75	20.8	30	25.3	35.4	41	37.6
Oudumxay	62.6	69.4	66.2	82.2	77.8	80	25.9	33.1	29.5	41.4	40.2	40.8
Bokeo	75.2	76.8	76	87.7	84.9	86.3	29	23.7	26.1	42.4	43.5	43
Luangprabang	81.9	80.7	81.3	91.1	91.9	91.5	25.8	28.7	27.2	48.4	49.9	49.2
Huaphanh	72.5	78.2	75.3	85.6	85.7	85.7	27.2	31.3	29.1	42.9	46.8	44.9
Xayabury	81.6	83.4	82.6	94.1	90	92.4	44.1	64.7	55.3	60.5	62.4	61.5
Center	80.8	83.3	82.1	84.6	87	85.8	42.8	41.3	42.1	55.8	49.1	52.3
Vientiane Municipality	96.4	95.3	95.9	92.1	94.3	93.3	68.5	71.8	70	85.2	80.3	82.6
Xiengkhuang	85	85.2	85.1	91.1	90.5	90.8	40.5	43.2	41.9	54.9	65.5	60.3
Vientiane Province	91.5	95	93.3	97	93.9	95.3	52.2	57.4	54.6	69.7	56.2	62.7
Borikhamxay	94.3	96	95.2	94.2	95.1	94.7	45.4	47.6	46.5	69	68.6	68.8
Khammuane	73.2	72.3	72.8	83.8	88.5	86.4	31.4	36.1	33.9	42.1	45.8	43.9
Savannakhet	72.6	78.4	75.8	76	79.5	77.7	42.6	33.6	38	50.4	36.7	42.9
South	76.1	77	76.5	78.5	81.9	80.4	26.6	32.7	29.9	38.7	38	38.3
Saravane	63.1	65.8	64.4	67.5	71.9	69.8	16.9	18.6	17.8	30.7	31.2	31
Sekong	76.2	71.9	73.9	88.5	83.6	86	23.6	21	22.3	32.5	23.8	28.1
Champasack	83.8	86.2	85	81.3	86.4	84.1	32.8	42.3	38	43.9	44.5	44.2
Attapeu	81.6	76.1	78.9	81.5	81.9	81.7	26.8	33	29.9	40	43.8	41.8

Sources: Authors' calculations from LECS 4–5.

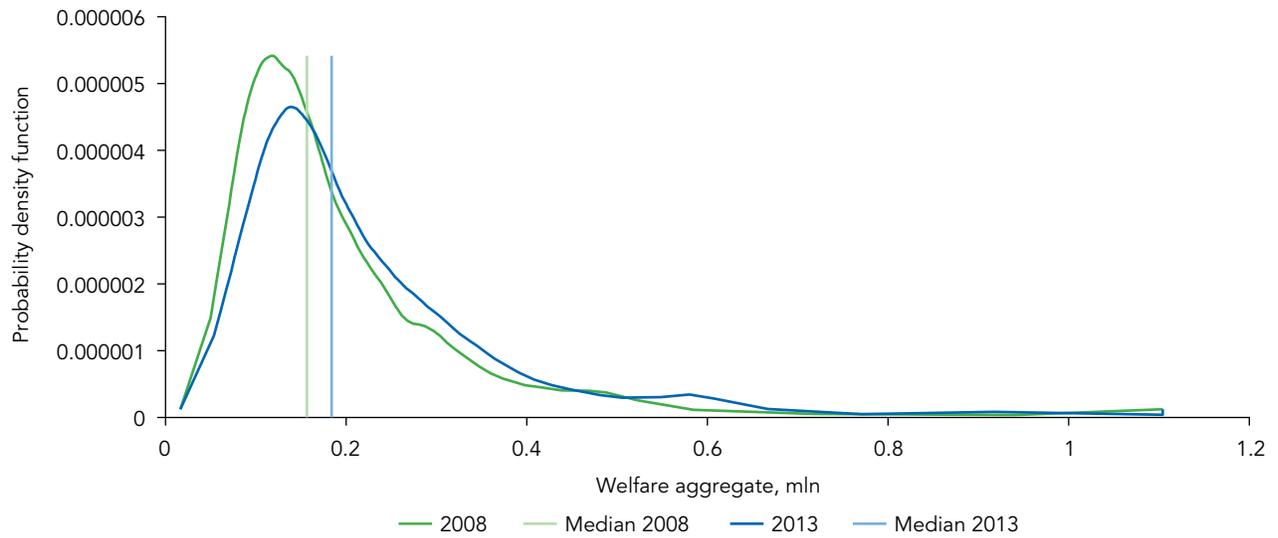
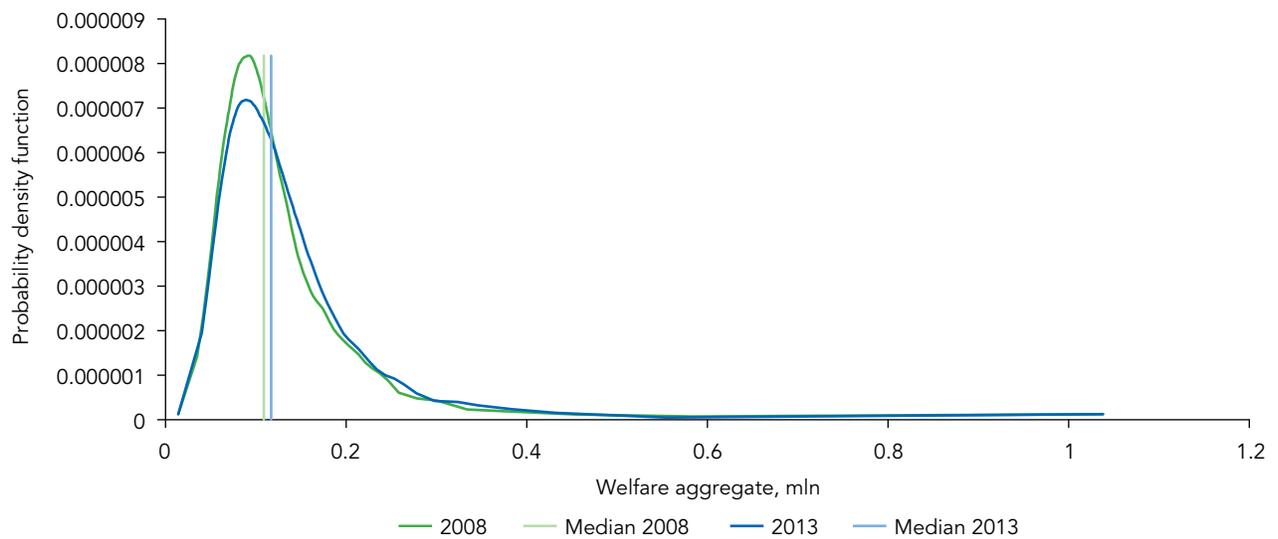
TABLE 48: Household head's level of education by ethnicity

Ethnic group	No formal education	Some primary	Completed primary	Completed lower secondary	Completed upper secondary	Completed vocational training	University degree	All
Column percentages-distribution of education attainment across ethnic groups								
Lao-Tai	35.7	55.8	71.4	78.3	89.9	87.0	84.7	66.4
Mon-Khmer	34.4	33.0	20.5	12.6	4.9	8.3	6.9	22.3
Chine-Tibet	15.1	2.0	1.5	1.5	0.9	1.7	0.3	3.4
Hmong-lu Mien	14.5	7.6	5.8	7.3	4.1	2.9	7.3	7.1
Other	0.2	1.5	0.8	0.2	0.2	0.1	0.9	0.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Row percentages-distribution of education attainment within ethnic groups								
Lao-Tai	7.1	16.9	49.7	6.3	11.0	6.8	2.1	100.0
Mon-Khmer	20.5	29.8	42.4	3.0	1.8	1.9	0.5	100.0
Chine-Tibet	59.7	12.2	20.7	2.5	2.2	2.6	0.1	100.0
Hmong-lu Mien	27.1	21.5	37.4	5.5	4.7	2.1	1.7	100.0
Other	3.2	39.0	51.3	1.5	2.4	0.7	1.9	100.0
Total	13.3	20.1	46.2	5.4	8.2	5.2	1.6	100.0

Sources: Authors' calculations from LECS 5.

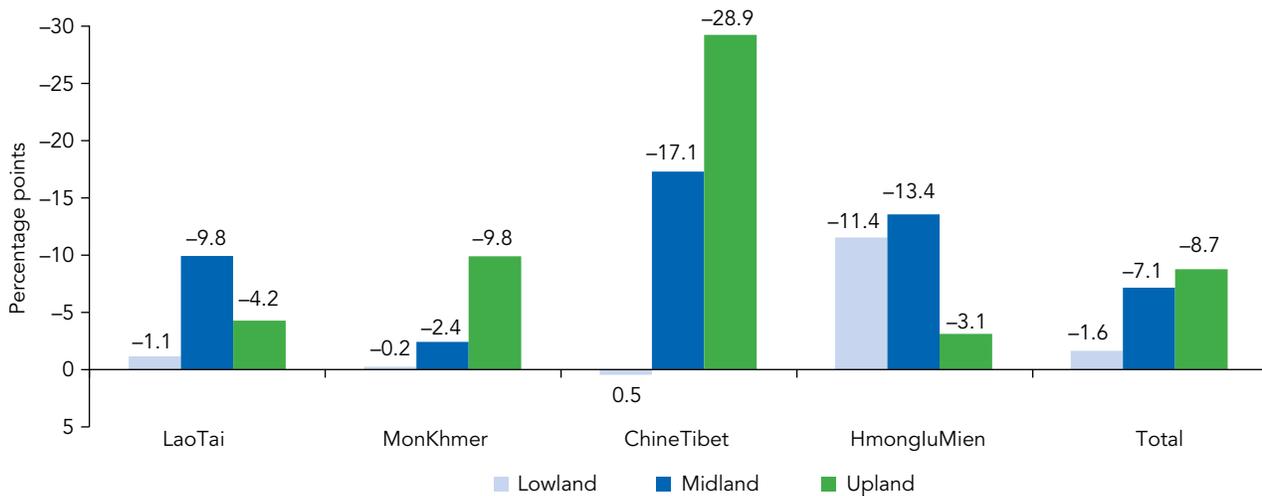
FIGURE 17: Per capita consumption probability density function, 2007/8–2012/13

Sources: Authors calculations from LECS 4-5.

FIGURE 18: Per capita consumption probability density function: Urban, 2007/8–2012/13**FIGURE 19:** Per capita consumption probability density function: Rural, 2007/8–2012/13

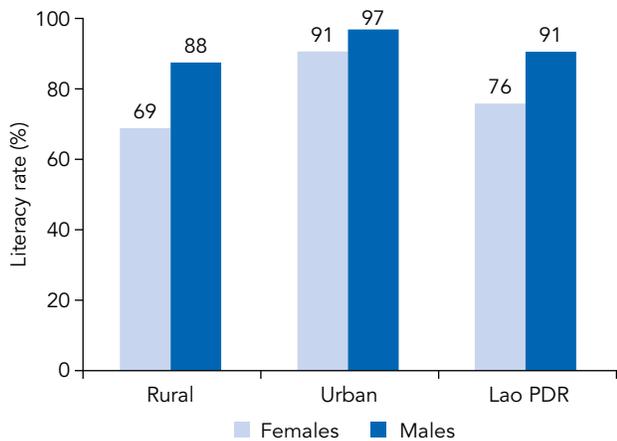
Sources: Authors calculations from LECS 4-5.

FIGURE 20: Percentage point change in poverty headcount rate by ethnicity and altitude: 2012/13

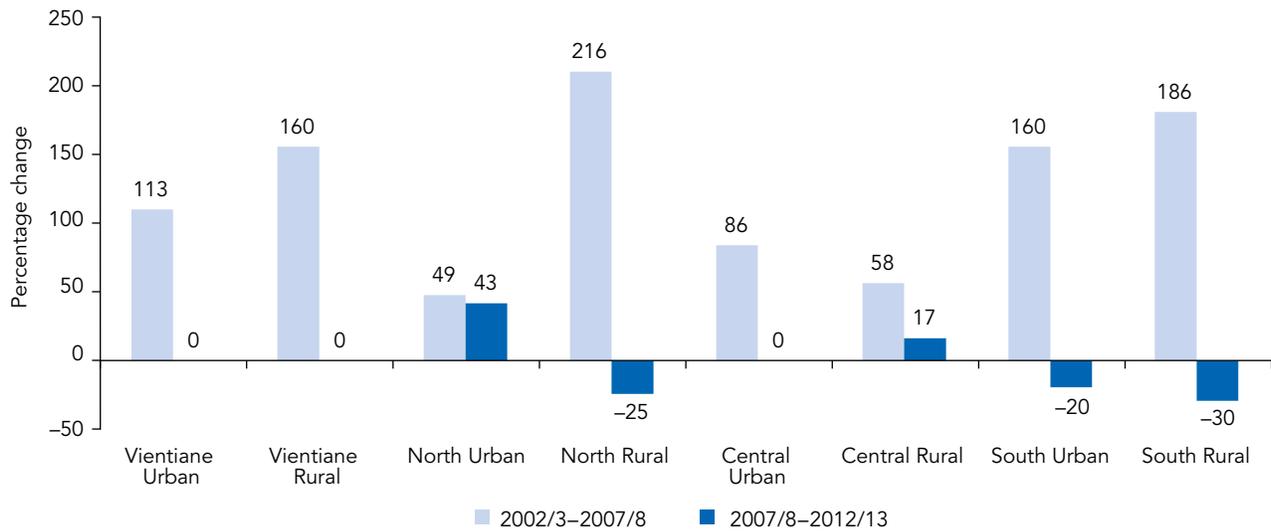


Sources: Authors calculations from LECS 4-5.

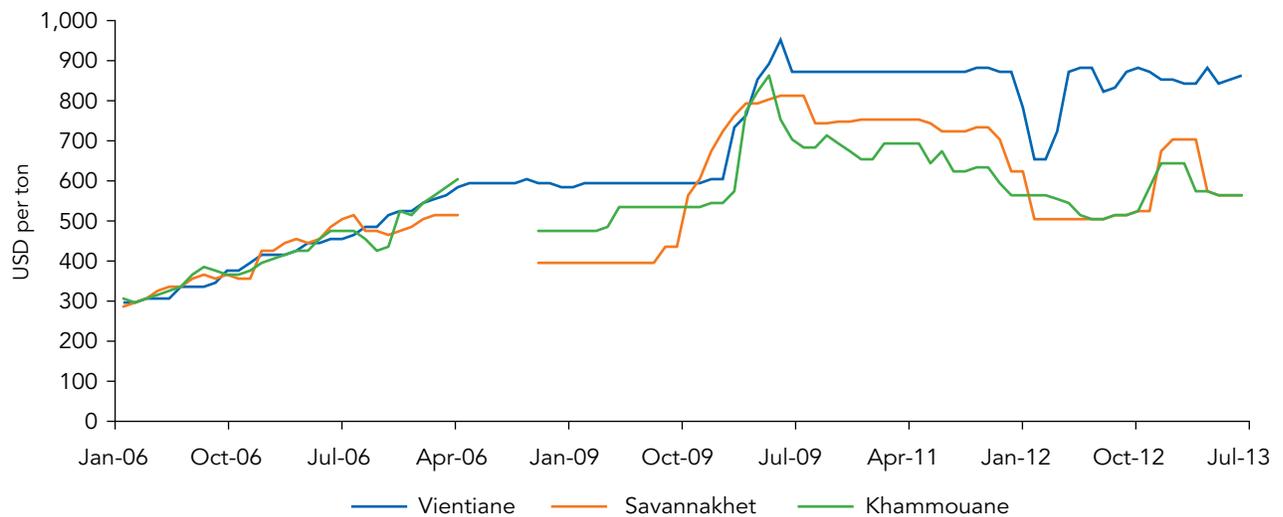
FIGURE 21: Literacy rates by location and gender: 2012/13



Sources: Authors calculations from LECS 4-5.

FIGURE 22: Percentage change in glutinous rice village prices by region: 2002/3–2012/13

Sources: Authors calculations from LECS 4–5.

FIGURE 23: Trends in retail glutinous rice prices in Lao PDR: 2006–2013

Source: FAO (GIEWS).

Note: Prices for Lao PDR are for second-quality glutinous rice, retail prices. Prices for Thailand are the export prices of glutinous 10% rice in Bangkok.



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