

## **Is economic growth increasing disparities? A multidimensional analysis of poverty in the Lao PDR between 2003 and 2013**

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### **Abstract**

*The Asian story of miraculous growth and poverty reduction has reinforced mainstream views of development that equate high and sustained economic growth with progress in human well-being. But understanding development only in terms of economic growth is not sufficient. This paper offers a different perspective on possible effects of Laos's transition from a subsistence-oriented economy to a market-oriented economy. We used a multidimensional poverty approach with panel data for the years between 2003 and 2013. Findings point towards that benefits were not equally distributed: 50% of people moved in and out of poverty, and the other half was either non-poor (37%) or always poor (13%).*

## 1 Introduction

From 2000 to 2015, the Millennium Development Goals (MDGs) guided the world's anti-poverty efforts. The global community recently celebrated the achievement of MDG 1, of halving the proportion of people living under USD 1.25 per day<sup>i</sup>. A closer look reveals that much of the success is owed to developments in China (UN 2015). But also countries like Vietnam, Thailand, Indonesia, and the Lao People's Democratic Republic (hereafter Laos) were main drivers for the impressive global poverty reduction. Overall, Asia's miraculous growth and poverty reduction story has been well publicised, contributing to a dominant understanding of development in which 'everything follows from the achievement of high and sustained economic growth and the challenge is to identify the policies that will generate and support growth' (Rigg 2015, 2). According to this understanding, poverty is viewed as a problem of low economic growth; solving underdevelopment is thus equated with encouraging growth (Dollar and Kraay 2002).

Rigg (2015) argues that while this may hold true for low-income countries, it appears less convincing when considering the persistence of poverty in rapidly growing middle-income countries such as Malaysia, the Philippines, and Thailand. In these countries, only marginal poverty reduction has emerged in the context of rapid growth. Policymakers and development agents have attributed this to growth being unequal, thus suggesting "pro-poor growth" as the solution (Ravallion 2001; Pattillo et al 2005). According to Rigg, 'the core issue is not just that the poor have somehow missed out on growth – [...] – but that, and counter-intuitively, the poor have also been, relatively and sometimes absolutely speaking, harmed by growth' (Rigg 2015, 7). Today, a growing body of scholars is questioning the development "success" of Southeast Asia; some are reluctant to acknowledge the economic "miracle" and are strongly

critical of the term “development” as applied to this pattern of economic growth [in Thailand], as it violates important values of equity, economic democracy, ecological balance, and human decency” (Bell 1992, 61).

Observations such as these, linked to a perceived widening gap between “development as growth” and “development as change for the better”, have triggered debates about the nature of poverty and about adequate indicators and measurements of poverty and inequality. Poverty and inequality have in the past usually been assessed by way of a welfarist concept using observable proxies for utilities such as income or consumption (Laderchi 1997). The dissatisfactions with this monetary approach are by now well established. The main criticism refers to the implicit assumption that income functions as a means of individual achievement. Some researchers argue that not all goods and services can be purchased on the market (Bourguignon et al. 2003, Thorbecke 2007, Tsui 2002), and not all goods and services can be assigned a monetary value. Thorbecke (2007) holds that even when individuals or households have sufficient income to satisfy their basic needs, they may not necessarily spend it on fulfilling these. Pogge & Reddy (2005) provide reasons to doubt the validity and meaningfulness of World Bank estimates of the level, distribution, and trend of global monetary poverty using the USD 1.25 poverty line. They further challenge the international poverty lines as being arbitrary and not an adequate reflection of humans’ real needs. Rigg (2012) additionally argues that standardised approaches to identifying the poor often fail to account for highly diverse experiences of poverty. These critiques of standardised approaches are not new: Amartya Sen (1981) pointed in much the same direction:

A small peasant and a landless labourer may both be poor, but their fortunes are not tied together. In understanding the proneness to starvation of either we have to view them not as members of the huge army of 'the poor,' but as members of particular classes, belonging to particular occupational groups, having different ownership endowments, and being governed by rather different entitlement

relations. Classifying the population into the rich and the poor may serve some purpose in some context, but it is far too indiscriminating to be helpful in analysing starvation, famines, or even poverty.

(Sen 1981: 156)

In response to the conceptual and technical drawbacks of income- and consumption-based poverty measures, alternative “multidimensional” assessment approaches have been developed that shift the focus away from what people possess and towards what they are capable of – thereby shifting from readily measurable indicators (e.g. income) to less easily measurable goods that reflect value judgements (Rigg 2015). In particular, Alkire and Foster (2011) have proposed using a global multidimensional poverty index (MPI) based on Amartya Sen’s groundbreaking capability approach (Sen 1980; Sen 1982; Sen 1992; Sen 2001; Sen 2009). The MPI emphasises three dimensions – education, health, and living standards – corresponding to 10 indicators. It represents a major shift in thinking on how to assess poverty and inequality, and may shed substantial light on certain negative consequences or “costs” of so-called modernization. Several countries have adopted national MPIs and a growing body of literature discussing differences between traditional and multidimensional poverty analysis has emerged in the last years (Laderchi, Saith & Stewart 2003, Roelen et al. 2012, Stoeffler et al. 2016, Bader et al. (2016). In October 2015, the Inter-agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDGs) adopted the global MPI as a Sustainable Development Goals (SDGs) target indicator for Goal 1 – to end poverty in all its forms everywhere. Thus, the traditional income-based poverty measure (i.e. the well-known USD 1.25 per day) shall be complemented in the context of the SDGs by a multidimensional poverty measure based on the methodology of Alkire and Foster.

Against this background we use panel data for Laos and construct a multidimensional poverty measure for the years 2003, 2007, and 2013 to analyse the effects of Laos's transformation towards a market-oriented economy for different subgroups of the Laotian population. We show where and how Laos and its population subgroups reduced multidimensional poverty.

### **The economics of transition in Laos**

Towards the end of the twentieth century, a number of socialist countries began engaging in reform programmes whose main objective was to transform their socialist economies into market economies. Laos was one of them. Its economic transformation process remains underway and is often referred to as the "New Economic Mechanism" (NEM), which was launched in 1986<sup>ii</sup>. The major purpose of the NEM is the development of an economy open to international trade and foreign investment. Figure 1 shows real Gross Domestic Product (GDP) growth for Laos and its major trading partners Thailand and Vietnam since the year the NEM was adopted. Thus, Laos is a showcase for the so called J-curve effect, which means that transition programmes result first in a contraction of output and a worsening of macroeconomic balances, followed by a gradual improvement of both production and macroeconomic indicators (Bourdet 2000: 64).

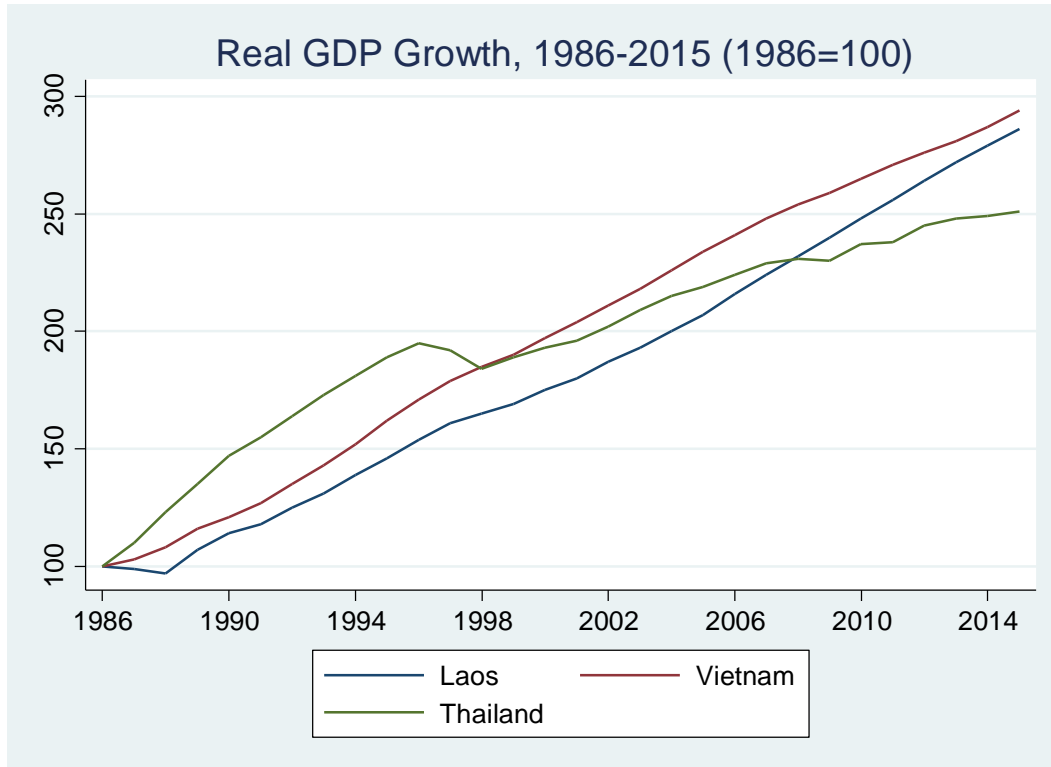


Figure 1: Source: IMF statistics

As Figure 1 clearly plots, Laos sustained strong economic growth after the introduction of the NEM in 1986. On average, the country grew at over 6% annually during every five-year plan since 1990. Approximately half of the economic growth is attributed to the exploitation of natural resources, mainly through large-scale land acquisition (LSLA), hydropower, and mining (World Bank 2010). The Lao government has also been relatively effective in transforming these economic achievements into poverty reduction, with reference to the established USD 1.25 per day poverty line. The proportion of people living below the poverty line has been reduced by 50% compared to the levels recorded in 1992/1993 (UN 2015). However, analyses of development in other dimensions have shown slower progress in key social indicators (WFP 2013, UN 2013, UNDP 2010). Thus, understanding development only in terms of economic growth is not sufficient. Distinct measures are required to determine whether rising national income is translating into social gains and poverty reduction. Poverty in Laos was traditionally assessed by monetary measures (GoL, 1999, 2004, 2009, 2013). A particular problem of these contemporary

poverty analyses is to see “the poor” as those who are not effectively integrated into the market economy, as illustrated by an article in the *Vientiane Times* in October 2014: ‘One reason is because not many people are producing marketable goods or services and many are still dependent on the vagaries of nature for their livelihood’. This leads to a focus exclusively on the role that market forces can play in poverty reduction. Hulme and Sheppard (2003) see two problems with this narrow focus. First, such a focus will not meet the needs of all different types of poor people. Second, it encourages measures for those among the poor whom the market can lift out of poverty but neglects the multiple needs of those who require different forms of support, policy change, or broader transformations within society that take time.

As Laos is among those countries whose example tends to support the above-mentioned narrative of successful poverty alleviation, it is particularly interesting to complement the narrow focus with a multidimensional perspective of development. To our knowledge, this study is the first using panel data to construct an MPI in order to analyse multidimensional poverty in a country over time. So far, poverty analysis based on panel data (e.g. chronic and transient poverty analysis) has mostly been limited to monetary-based poverty measures (e.g. the latest World Bank report on drivers of poverty reduction in Laos) (World Bank 2015). Combining chronic and transient poverty approaches with the decomposability features of the MPI, our paper presents new insights into poverty dynamics and reveals interesting and policy-relevant information on important non-monetary dimensions of chronic and transient poor. We explore the widening gap between “development as growth” and “development as change for the better” (Rigg 2015, 13), using four different categories of the poor as shown in Figure 2: (1) the chronic poor or long-term poor (i.e. those who have been “left behind” in the wake of economic transformation), (2) the rising poor (i.e. those who were lifted out of poverty), (3) the falling poor or, according to Rigg (2015), the produced poor (i.e. those whose poverty is linked

to the very processes that have generated growth), and finally (4) the churning poor (i.e. those who jumped in and out of poverty within the study period of 2003 to 2013).

## **2 Methodology**

### **Data**

For our analysis, we use the Lao Consumption and Expenditure Surveys for the years 2002/03 (LECS 3), 2007/08 (LECS 4), and 2012/13 (LECS 5). All LECS datasets are representative nationally and across the three regions North, Central, and South. The survey sample covers the whole country and is stratified by province and village type (urban, rural with road, and rural without road)<sup>iii</sup>. We constructed a panel with over 1,700 households – where the same household is surveyed at all three points in time. A comparison of panel households to non-panel households shows statistically insignificant or very small differences between raw deprivation headcounts of multidimensional poverty indicators (see Appendix Table A.8).

### **The concept of chronic and transient poverty**



Hulme and Sheppard (2003) have pointed out that contemporary poverty analysis focuses excessively on the role that market forces can play in poverty reduction. Amartya Sen's quote above warns us that viewing poor people as a homogenous group can both weaken analysis and distort policies. A narrow concept of poverty is likely to neglect the chronic poor (i.e. those who have experienced poverty over a long time period), as there are multiple factors constraining their ability to achieve the capabilities they have reason to value. With our panel data, we are able to analyse the chronic poor and poverty transitions between 2003 and 2013. In this study we use an approach by McKay and Lawson (2003) to define chronic and transient poverty. Within this framework, a household that is poor in only one period is classified as transient poor, while a household that is poor in both periods is considered chronically

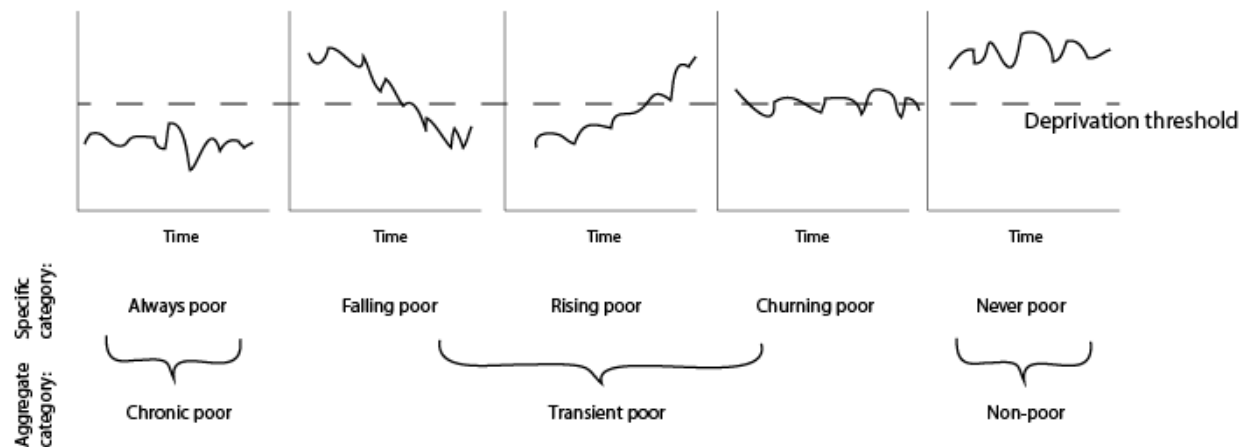


Figure 2: The chronic poor, transient poor and non-poor. Source: Adapted from Jalan and Ravallion (2000)

poor. As we have three periods, we adapted their concept as presented in Figure 2. A household is considered chronically poor if it is classified as multidimensionally poor in each of the three periods. A household is classified as transient poor if it is multidimensionally poor in at least one of the three periods observed.

Figure 2: The chronic poor, transient poor, and non-poor

### An MPI adjusted for inter-temporal analysis

Our multidimensional poverty measure is based on the global MPI developed by Alkire and Santos (2010, 2014). We use the adjusted headcount ratio ( $M_0$ ) proposed in Alkire and Foster (2011)<sup>iv</sup>, which is the product of the incidence of poverty ( $H$ ) and the intensity of poverty ( $A$ ):

$$M_0 = H * A = \frac{q}{n} * \frac{\sum_{i=1}^n c_i(k)}{q}, \text{ if } c_i > k$$

Where the incidence of poverty ( $H$ ) equals the number of poor people ( $q$ ) in a society divided by the total number of individuals ( $n$ ) in that society. A person is identified as poor in two steps. First, the person is identified as deprived or not in each of the chosen indicators ( $j$ ), with corresponding relative weights ( $w_j$ ), using a deprivation cut-off ( $z_j$ ) (see Table A.6). We then assign each person a deprivation status value ( $g_{ij}$ ), such that  $g_{ij}=1$  if a person is deprived in a particular indicator, or  $g_{ij} = 0$ , if they are not. This gives us a deprivation matrix ( $g_0$ ), or when applying the relative indicator's weights we obtain a weighted deprivation matrix ( $\bar{g}_0$ ). In a second step we compute an overall deprivation score  $c_i \in (0,1)$  for each person  $i$ , such that  $c_i = \sum_{j=1}^n w_j g_{ij}$ . The person is then identified as poor if  $c_i \geq k$ , where  $k \in (0,1)$ , and non-poor, otherwise. Thus we now have a censored weighted deprivation matrix  $\bar{g}_0(k)$ , where columns represent indicators and rows represent persons.

In order to analyse poverty transitions over time, we have to extend  $M_0$  and include information on time periods. Following Alkire et al. (2015) we count the periods in which a person is identified as poor, and create a new identification matrix  $Q(k)$  with  $n \times T$  elements, where the columns now represent time periods ( $T$ ) instead of indicators. Recall that 1 indicates that a person ( $i$ ) is multidimensionally poor in period  $t$  and a 0 indicates they are non-poor. In our study,  $T$  equals three periods such that we have a  $n \times 3$  matrix:

$$Q(k) = \begin{bmatrix} 0 & 1 & 0 \\ 0 & 0 & 0 \\ 1 & 1 & 1 \\ \vdots & \vdots & \vdots \\ 1 & 0 & 1 \end{bmatrix}$$

### Constructing dynamic subgroups

Analysing different dynamic patterns of multidimensional poverty might reveal policy-relevant information, i.e. entry points for greater efficacy in eradicating multidimensional poverty. We therefore constructed dynamic subgroups that experience different patterns of multidimensional poverty over time. Considering Figure 2 and the identification matrix  $Q(k)$ , we can assign all possible entries of  $Q(k)$  to one of the five categories in Figure 2:

Non-poor: 0 0 0

Falling poor: 0 0 1 and 0 1 1

Rising poor: 1 0 0 and 1 1 0

Churning poor: 1 0 1 and 0 1 0

Always poor: 1 1 1

### Comparable indicators for inter-temporal analysis

The global MPI is based on 10 indicators grouped into three dimensions (education, health, and standard of living). Alkire and Santos (2010, 2014) used the dimensions, indicators, and weights for each country to assure international comparability. Following Sen's discussion on weights representing value judgments (1992), the global MPI normatively weights each dimension equally. Moreover, indicators within the same dimension also receive the same weights. The global MPI uses a weighted indicator

deprivation threshold of  $k=1/3$ , meaning that an individual has to be deprived in at least 33% of the weighted indicators to be considered multidimensionally poor. This study uses the same dimension as the global MPI but for reasons of data availability we adjusted three indicators (see Table A.6).

The education dimension uses the two standard indicators “years of schooling” and “school attendance”. Following the idea of proximate literacy (Basu & Foster 1998), non-deprivation with regard to the years of schooling indicator requires that at least one household member has completed primary school. The logic behind this is that the whole household benefits from having even just one literate member (so-called intra-household externality). Non-deprivation with regard to the second indicator in the education dimension requires that all school-aged children in a household attend school<sup>4</sup>.

In the health dimension, due to lack of consistency in measuring nutrition, we had to adjust the nutrition indicator used in the global MPI. Our nutrition indicator is based on the household’s meat and fish consumption. We applied the Z-score approach to construct a food deprivation classification system based on Babu and Sanyal (2014) (see Table A.9). The Z-score is defined as the difference between the household’s food consumption per adult equivalent and the median food consumption per adult equivalent of the reference population. The median reference population is the mean consumption per adult equivalent of households in the third and fourth quintile. Furthermore, due to a lack of data on child mortality which serves as a proxy for overall health status in the global MPI, we included an indicator on self-reported health status. For a discussion on advantages and disadvantages of self-reported health status as proxy for the overall health status, we refer to Case and Deaton (2002).

In the standard of living dimension, we adjusted the indicator of cooking fuel so that a household is assumed to be deprived if cooking with dung, wood, or charcoal in an indoor kitchen. This is because indoor air quality in Lao PDR is seen as a serious concern, and cooking with clean fuel helps people avoid respiratory diseases (UNEP and MONRE 2012). As a consequence, the deprivation ratio in this indicator is significantly lower than in earlier studies by Bader et al. (2016). Access to electricity and flooring material

provide some rudimentary information about the quality of housing. The sanitation indicator refers to environmental sustainability: a household is considered deprived if the sanitation facility is not improved, or if it is shared with other households. If a household has no access to safe drinking water at all, or if accessing safe water requires a round trip of more than 30 minutes on foot, the household is considered to be deprived of access to safe drinking water. The data for drinking water in 2012/13 has a major increase in responses of ‘others, specify’, to the question on sources of drinking water, but no details on these specific sources are available within the provided dataset. We classified these responses as deprived of drinking water, leading to an increase in people deprived in this indicator. However, the trend of people deprived of drinking water between 2003 and 2013 is still reflected among the multidimensionally poor people (GoL 2013). The last indicator in the living standard dimension covers ownership of certain assets, including a car, radio, television set, telephone, bicycle, and motorbike.

### 3 Reduction in multidimensional poverty: where?

Based on the comparable indicators, we first analyse the change in national poverty between 2003 and 2013. We then explore how this reduction has taken place by decomposing the results into different population subgroups. Table 1 reports the MPI (M0) for Laos and its two components – the multidimensional poverty headcount (H) and the intensity of poverty (A) using  $k=1/3$ .

Table 1: MPI results for Lao PDR, 2003-2013,  $k=3$

	2002/3	2007/8	2012/13
Headcount (H)	50.9% [48.6;53.3]	34.9% [32.7;37.2]	22.7% [20.7;24.7]
Intensity (A)	51.2% [50.3;52.1]	48.3% [46.8;49.8]	43.2% [40.1;45.8]
MPI (M0)	0.261 [0.247;0.274]	0.169 [0.157;0.180]	0.098 [0.089;0.107]

Note: 95% confidence interval in brackets []

Table 1 shows a significant reduction in national multidimensional poverty between 2003 and 2013, from 0.261 to 0.098. The reduction in H and A are both statistically significant. The magnitude of reduction is larger for H: overall, Laos reduced the proportion of multidimensionally poor people (H) by more than 50%. The trend of multidimensional poverty follows the traditional monetary-based measure of the World Bank (USD 1.25), which decreased from slightly over 40% in 2003, to 23% in 2013.

As Jenkins & Lambert (1997) state, all three “I”s of poverty – incidence, intensity, and inequality – are important. Thus, understanding changes in incidence and intensity of poverty does not suffice for the planning of effective poverty alleviation measures. For this reason, we disaggregated the MPI into population subgroups and analysed the different patterns by which poverty dynamics evolved.

Table 2: MPI results for Lao PDR for different population subgroups, 2002/3, 2007/8 and 2012/13, k=3

	2002/03			2007/08			2012/13			Change		
	MPI	H	A	MPI	H	A	MPI	H	A	MPI	H	A
National	0.261	51%	51%	0.169	35%	48%	0.098	23%	43%	-0.163	-55%**	-16%**
Urban	0.120	28%	43%	0.075	19%	39%	0.032	8%	40%	-0.088	-72%**	-7%*
Rural with road	0.312	59%	52%	0.191	39%	49%	0.117	27%	43%	-0.195	-55%**	-17%**
Rural without road	0.419	76%	55%	0.338	63%	54%	0.201	43%	46%	-0.218	-44%**	-17%**
Northern region	0.411	73%	57%	0.283	53%	53%	0.167	38%	44%	-0.244	-48%**	-23%**
Central region	0.192	41%	47%	0.115	26%	45%	0.070	16%	43%	-0.122	-61%**	-8%**
Southern region	0.254	51%	50%	0.164	36%	46%	0.089	21%	42%	-0.165	-58%**	-16%**
Lao-Tai	0.170	38%	45%	0.094	22%	42%	0.051	13%	41%	-0.119	-66%**	-8%**
Mon-Khmer	0.458	82%	56%	0.326	63%	52%	0.199	46%	43%	-0.259	-44%**	-23%**
Chinese-Tibetan	0.556	84%	66%	0.489	82%	60%	0.312	61%	51%	-0.244	-27%**	-13%**
Hmong-lumien	0.553	87%	64%	0.373	70%	53%	0.224	51%	44%	-0.329	-42%**	-31%**

The statistical test of differences are adjusted wald tests. \*\*Statistically significant at  $\alpha = 1\%$ .  
\*Statistically significant at  $\alpha = 5\%$ .

#### (a) Demographic shifts

In order to accurately interpret poverty dynamics across population subgroups over time, we must consider potential changes in the demographic structure between periods. During the study period, the population of Laos increased from 5.6 million to 6.8 million (World Bank 2015). The proportion of people

living in urban centres increased from 25% in 2003 to 36% in 2013. Our panel data set cannot reflect this increase and depicts the population living in urban areas at 32%.

*(b) Across geographic areas and social groups*

The first part of Table 2 reflects Laos's development in multidimensional poverty across rural and urban areas. Due to the importance of road access in Laos, we divided the rural areas into rural areas with road access and others with no road access (Warr 2005, Heinemann et al. 2013, Messerli et al. 2015). The results reveal that urban and rural areas observed a marked reduction in the percentage of people living in multidimensional poverty. The same is not true for the intensity (A), meaning that the people who are poor in 2012/13 are almost as poor as in 2002/03. Rural–urban migration is likely to have an influence, slowing down both the rates of reduction of poverty as well as of poverty intensity in urban areas, given the assumption that mainly poor households migrate from rural to urban areas.

We see a marked reduction in both percentage of multidimensionally poor (H) people and intensity of poverty (A) for all but the Central region, where A was reduced only marginally. The absolute reduction in H was largest for the Northern region with 35 percentage points, whereas the relative reduction was largest for the Central region. Comparing ethnolinguistic families reveals that progress in the last decade was not the same for all ethnolinguistic families. With respect to the absolute reduction in H, the ethnolinguistic minority groups of Mon-Khmer, Chinese-Tibetan, and Hmong-lumien made the most progress. Relatively speaking, we see that the ethnolinguistic majority – the Lao-Tai – developed best, achieving a 66% reduction in the number of people living in multidimensional poverty. The disparities between ethnolinguistic families increased from 2002/03 to 2012/13. In 2002/03, the poverty headcounts of the minority groups varied between 82% and 87%, while in 2012/13 the level is lower but the variance is higher (between 46% and 61%). These observations for ethnolinguistic families represent a general trend of increasing disparities in Laos. The reasons for this increase are manifold and complex. Chamberlain (2006) discusses the fact the ethnic diversity is often viewed as hindrance rather than an

asset in Laos such that responses to development and modernization vary considerably between ethnic groups. For example in section four, we present findings which point in this direction and question the allocation of government resources. Also Epprecht et al. (2008) and Messerli et al. (2015) argue that social distance between different ethnic groups outweighs the geographic or physical distance to development opportunities. Certain groups always seem to be more negatively affected than others.

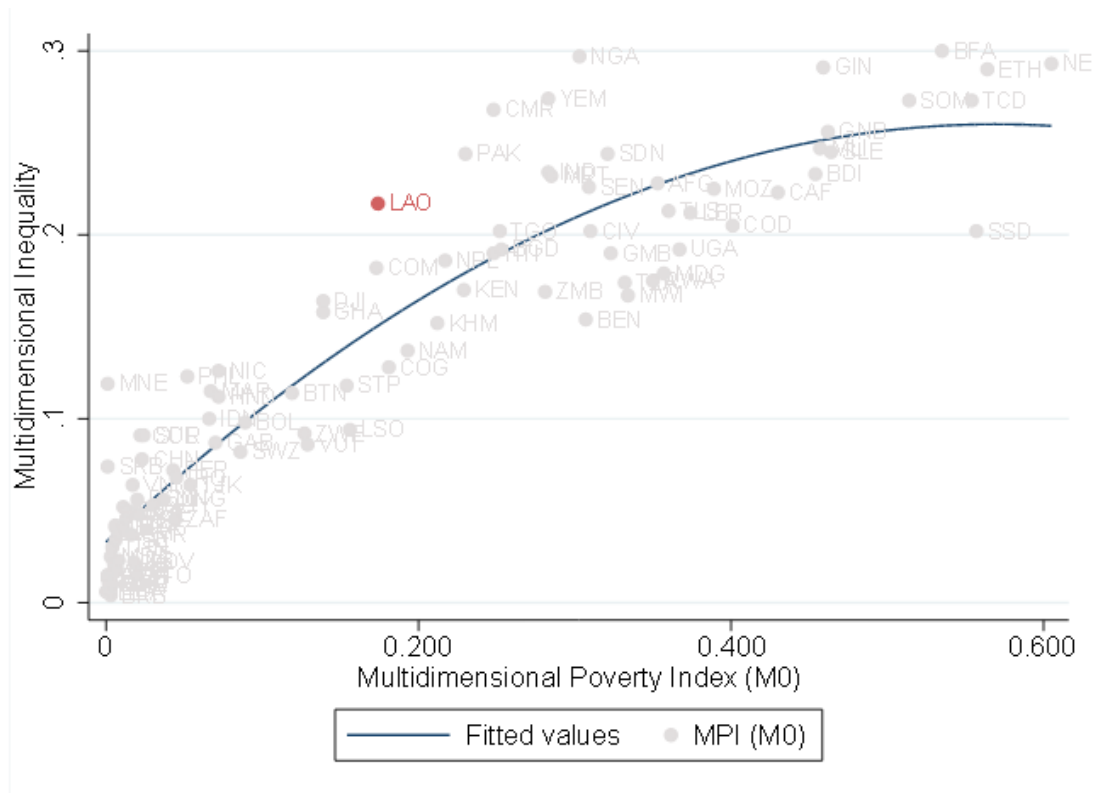


Figure 3: The relationship of inequality and multidimensional poverty

Alkire and Robles (2015) found similar results for Laos in their analysis of the relationship between MPI poverty and inequality among the poor across 90 developing countries (Figure 3). We reproduced the chart based on their data to visualise Laos's high level of inequality compared to other countries with similar poverty rates. The horizontal axis shows the level of MPI poverty, with high-poverty countries on the right. The vertical axis charts inequality among the poor; higher is poorer. Overall, there is a positive relationship between MPI poverty and inequality; in other words, the higher the MPI value, the greater



the level of inequality among the poor. Notably, Laos has rather a high level of inequality compared to other countries with similar MPI poverty.

In order to obtain a sense of the multidimensional disparities within Laos, we compare the MPI of Laos and its population subgroups with other countries' global MPI values. Figure 4 reveals that disparities within Laos are as big as global disparities. For example, Lao-Tai people are as well off as Indonesian people, whereas the Chinese-Tibetan people face as many multiple deprivations as people in Afghanistan. However, we used slightly different indicators compared to the global MPI. Nevertheless, our illustration indicates that while Laos was successful in reducing multidimensional poverty, the score is significantly lower when taking into account different population subgroups, mainly by ethnolinguistic criteria.

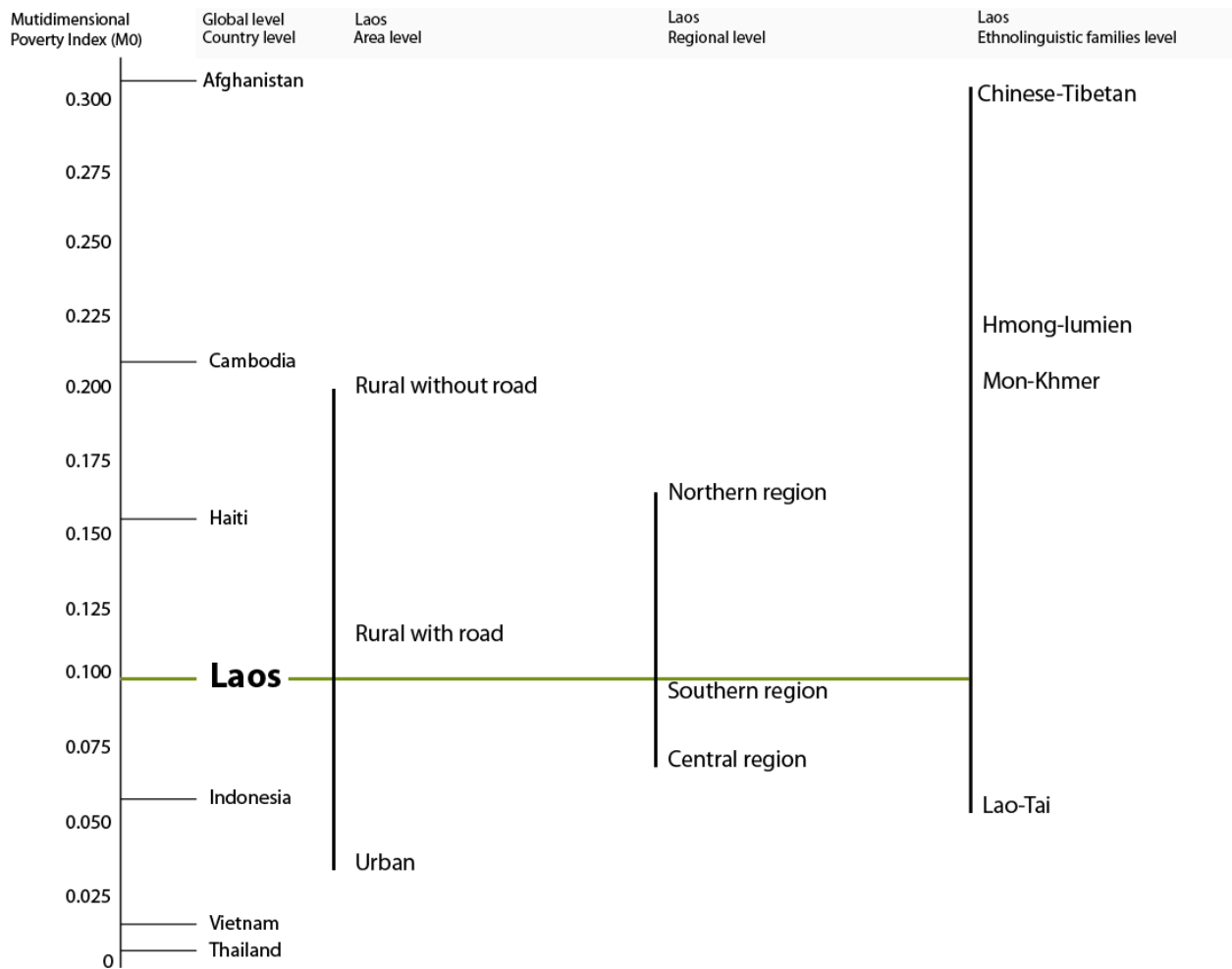


Figure 4: Multidimensional disparities among population subgroups in Laos

Overall it is interesting to note that large reductions in H have not necessarily been accompanied by large reductions in A and vice versa. For example, the Lao-Tai had a marked reduction in the proportion of people living in multidimensional poverty (H), whereas the ethnolinguistic families of Mon-Khmer and Hmong-lumien showed a marked reduction in the intensity of poverty (A). In other words, a similar reduction in overall multidimensional poverty (i.e. the MPI) may be obtained by different combinations of reduction in H or A. For example, if a state merely focuses on assisting the marginally poor in order to lift them over the poverty line, then this improvement would be reflected in H, but not so much in A. On the other hand, if measures are addressed at the poorest of the poor (i.e. those who face multiple deprivations at the same time), then improvements are reflected in A, but not so much in H. This is

because the poorest of the poor are now better off but still face deprivations in more than one-third of the weighted indicators. Thus, they are still multidimensionally poor, but less severely as before. For Laos, the panel data show that the average intensity of poverty (A) for people emerging from poverty (rising poor) either in 2008 or 2013 was 44%, whereas A for people remaining in poverty is 54%. These findings support Darrow's (2012) hypothesis that poverty reduction programmes based on information provided by standardised metrics such as USD 1.25 per day bear the risk of focusing only on lifting the marginally poor over the poverty line. Hence, exploring multidimensional poverty, decomposing the MPI and changing relations between H, A, and the MPI can reveal helpful policy insights.

#### **4 How has multidimensional poverty reduced?**

Although Laos experienced significant multidimensional poverty reduction in the last decade, progress was not uniform among subgroups of the population, nor across indicators (as reported in Table 3). We present our data in terms of "raw" or "censored" headcounts. The raw headcount refers to the total population; i.e. the proportion of deprived people as a percentage of the whole population. The censored headcount presents this proportion as a percentage of only the multidimensionally poor people. Absolute reductions in censored headcounts are greatest in the indicators of education, self-rated health, electricity, sanitation, and assets; the greatest relative reduction is in years of schooling. The reductions in the censored headcount percentages do not necessarily correspond to the reduction in raw headcount percentages. While the education indicators reveal the same pattern in both raw and censored headcounts, the health indicators show a different pattern. The relative reduction in self-rated health among the multidimensionally poor (i.e. censored headcounts) is significantly higher than for the whole society. The nutrition indicators even increased from 2003 to 2008, decreasing again in 2013, although the raw headcount for nutrition is higher in 2013 than 2003.

Table 3: Proportion of people deprived by indicator

Dimension	Indicator	2002/03		2007/08		2012/13	
		rawH	censH	rawH	censH	rawH	censH
Education							
	Years of schooling	23.9%	22.4%	15.3%	13.1%	2.6%	2.3%
	School attendance	21.4%	20.2%	11.1%	10.2%	5.9%	5.4%
Health							
	Nutrition	22.9%	19.8%	26.6%	21.9%	25.7%	16.0%
	Self-rated health	69.2%	44.0%	57.8%	27.7%	49.5%	19.3%
Standard of living							
	Electricity	50.1%	36.6%	32.3%	21.1%	16.1%	9.4%
	Drinking water	19.9%	12.5%	17.6%	4.0%	34.1%	2.9%
	Sanitation	48.0%	36.2%	34.4%	20.2%	23.5%	12.0%
	Floor	6.1%	5.4%	6.0%	5.2%	4.6%	3.1%
	Cooking	33.9%	22.6%	32.5%	15.0%	38.3%	10.6%
	Assets	47.2%	36.6%	28.7%	20.0%	14.2%	9.1%

The raw headcount refers to the total population; the censored headcount refers to multidimensionally poor people in Laos ( $k=3$ )

These results indicate that the reduction in multidimensional poverty has been achieved mainly through improvements in education and the standard of living. The picture becomes even clearer when interpreting the censored headcount ratios with respect to the percentage of people living in multidimensional poverty. In line with Alkire and Seth (2015) we divided the censored headcount ratios by the incidence of poverty (H) in Appendix Table A.7 to show how the deprivation profile changed for each indicator among the multidimensional poor only. We see that for example in 2003, 39% of multidimensionally poor people are deprived in “nutrition”; in 2013, this figure rose to 70%. We also see that the indicators with the largest reductions in censored headcounts also registered the largest reductions in deprivations among the poor, with the exception of self-rated health status. Thus, we can conclude that Laos’s significant reduction in multidimensional poverty has been accomplished by large improvements in education indicators and living standard indicators – mainly electricity, sanitation, and assets.

Decomposing the reduction in censored headcounts by ethnolinguistic families reveals striking findings (see Table 4). The large overall reduction in education indicators, electricity, and sanitation are unequally distributed among the ethnolinguistic categories. For example, we see that in 2013 approximately 2% of multidimensionally poor people face deprivation in “years of schooling”, but among the multidimensionally poor Chinese-Tibetan people, almost 25% are still deprived in this indicator. The same is true for improvements in sanitation: on average, 12% of multidimensionally poor people face deprivation in sanitation, but this is comprised of 55% Chinese-Tibetan people compared to only 4% Lao-Tai. Moreover, also in the availability of electricity, we find considerable disparities between ethnolinguistic families. As of 2003, almost 40% of multidimensionally poor people in Laos had no access to electricity. This percentage decreased to less than 10% in 2013. While the Lao-Tai and to a lesser degree the Mon-Khmer people have experienced remarkable improvements in the availability of electricity, almost 50% of multidimensionally poor Chinese-Tibetan people have no access to electricity. For the nutrition indicator, we see that the deprivation ratios for ethnolinguistic minority groups are still high in 2013. The results for drinking water are interesting, with the Lao-Tai facing the highest deprivation among the ethnolinguistic families.

Table 4: Proportion of multidimensionally poor people deprived by indicator, decomposed by ethnolinguistic families

		Laos		Lao-Tai		Mon-Khmer		Chinese-Tibetan		Hmong-lumien	
		2003	2013	2003	2013	2003	2013	2003	2013	2003	2013
Education											
	Years of schooling	22.4%	2.3%	11.9%	1.3%	45.5%	2.8%	68.6%	23.7%	47.9%	2.0%
	School attendance	20.2%	5.4%	12.4%	2.1%	37.4%	12.6%	46.0%	22.9%	45.1%	12.1%
Health											
	Nutrition	19.8%	16.0%	13.4%	9.3%	35.3%	32.5%	31.2%	27.7%	41.8%	38.6%
	Self-rated health	44.0%	19.3%	34.4%	11.9%	67.0%	39.0%	62.9%	36.7%	74.1%	36.0%
Standard of living											
	Electricity	36.6%	9.4%	23.6%	2.3%	69.2%	23.7%	78.6%	49.3%	67.0%	29.0%
	Drinking water	12.5%	2.9%	5.9%	3.6%	23.2%	1.0%	38.6%	3.5%	43.9%	0.8%
	Sanitation	36.2%	12.0%	25.0%	4.4%	64.9%	30.3%	79.0%	54.7%	54.3%	21.0%
	Floor	5.4%	3.1%	0.8%	0.1%	0.1%	1.3%	26.0%	25.5%	71.4%	35.4%
	Cooking	22.6%	10.6%	12.4%	5.4%	39.3%	18.3%	71.5%	50.7%	68.4%	30.1%
	Assets	36.6%	9.1%	22.6%	3.0%	72.6%	22.5%	79.5%	45.0%	63.7%	21.3%

This table presents censored headcount ratios. The percentages show how many people are both multidimensionally poor and deprived in the specific indicators.

In Figure 5 we present the weighted contribution of all 10 indicators considered for multidimensional poverty. If a certain indicator's contribution to multidimensional poverty exceeds its weight, this suggests relatively high deprivation with regard to this indicator. In other words, it means that the poor are more deprived with regard to this indicator than with regard to others. Aggregated for the three dimensions, we find that in 2003 they contributed almost according to their weights, with a slightly higher contribution of the health dimension (41%). The education and living standard indicators reduced their contribution to overall poverty during the observed time period, whereas the health dimension increased its contribution to overall poverty at national level. Disaggregating these observations in terms of village types (urban, rural with road, and rural without road) reveals interesting findings. The pattern becomes even more pronounced for households living in urban areas, and blurred for rural areas.

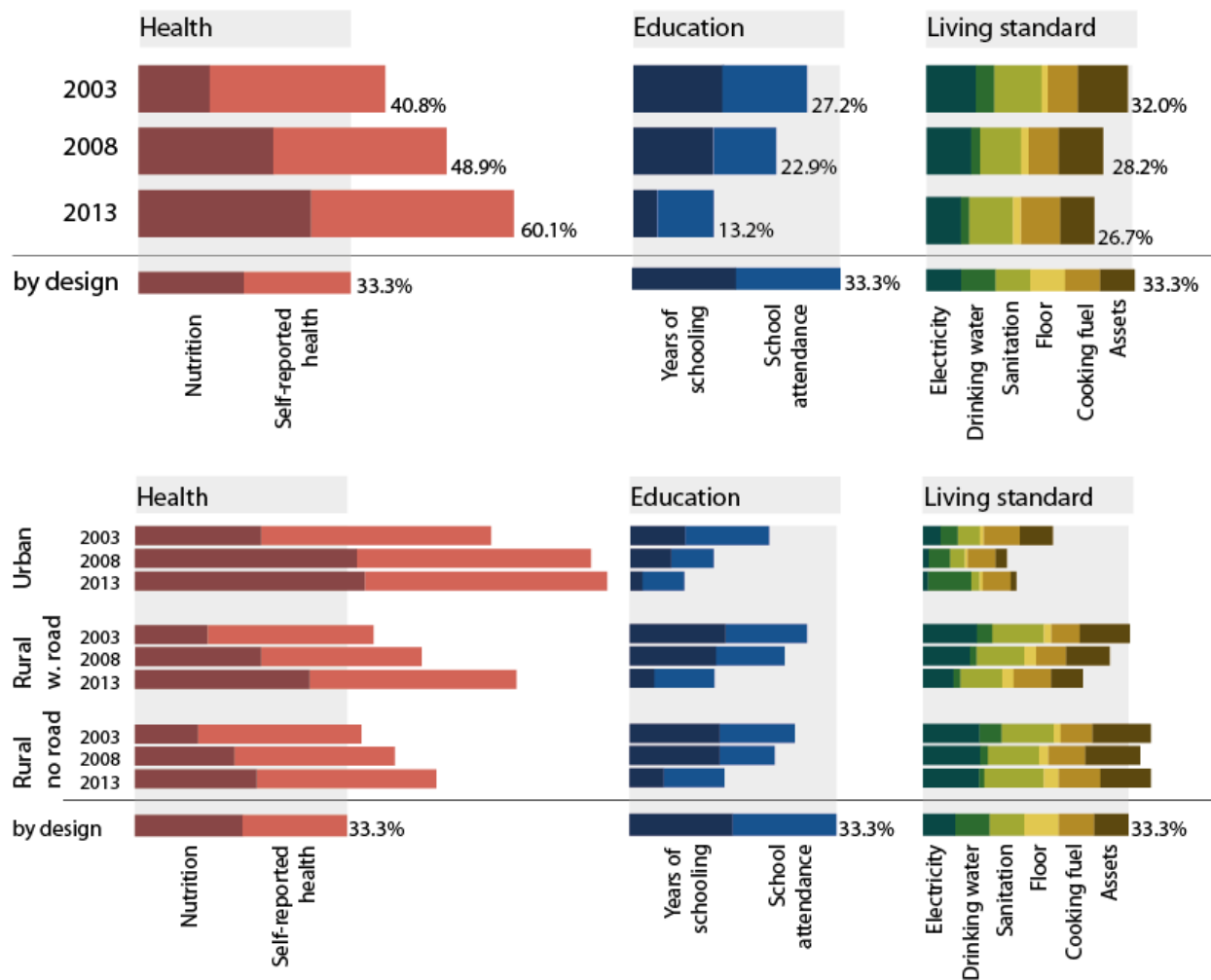


Figure 5: Weighted relative indicator contribution to overall multidimensional poverty

#### 4.1 Poverty dynamics

Relying on national aggregates and cross-sectional analysis is not enough for appropriate poverty reduction strategies (e.g. Krishna & Shariff 2011; Rigg & Salamanca 2015). Krishna and Shariff show the importance of analysing poverty dynamics, whereby they highlight how poverty is simultaneously both created and reduced. In order to gain a deeper understanding of how multidimensional poverty in Laos has developed over time, we use the concept of chronic and transient poverty (c.f. Figure 2). This allows

us to assess the dynamics of poverty in Laos within the last decade. We built five groups: (1) Households who are always poor, meaning they are multidimensionally poor in 2002/03, 2007/08, and 2012/13. (2) Households who fell into poverty within the observed time period; thus, either the household turned poor in 2007/08 or in 2012/13. (3) Households who rose out of poverty, and (4) households who jumped in and out of poverty or vice versa. Finally, the last group consists of non-poor households. Table 5 shows the poverty dynamics for different population subgroups in Laos.

Table 5: Poverty dynamics between 2003 and 2013 for different population subgroups in Laos

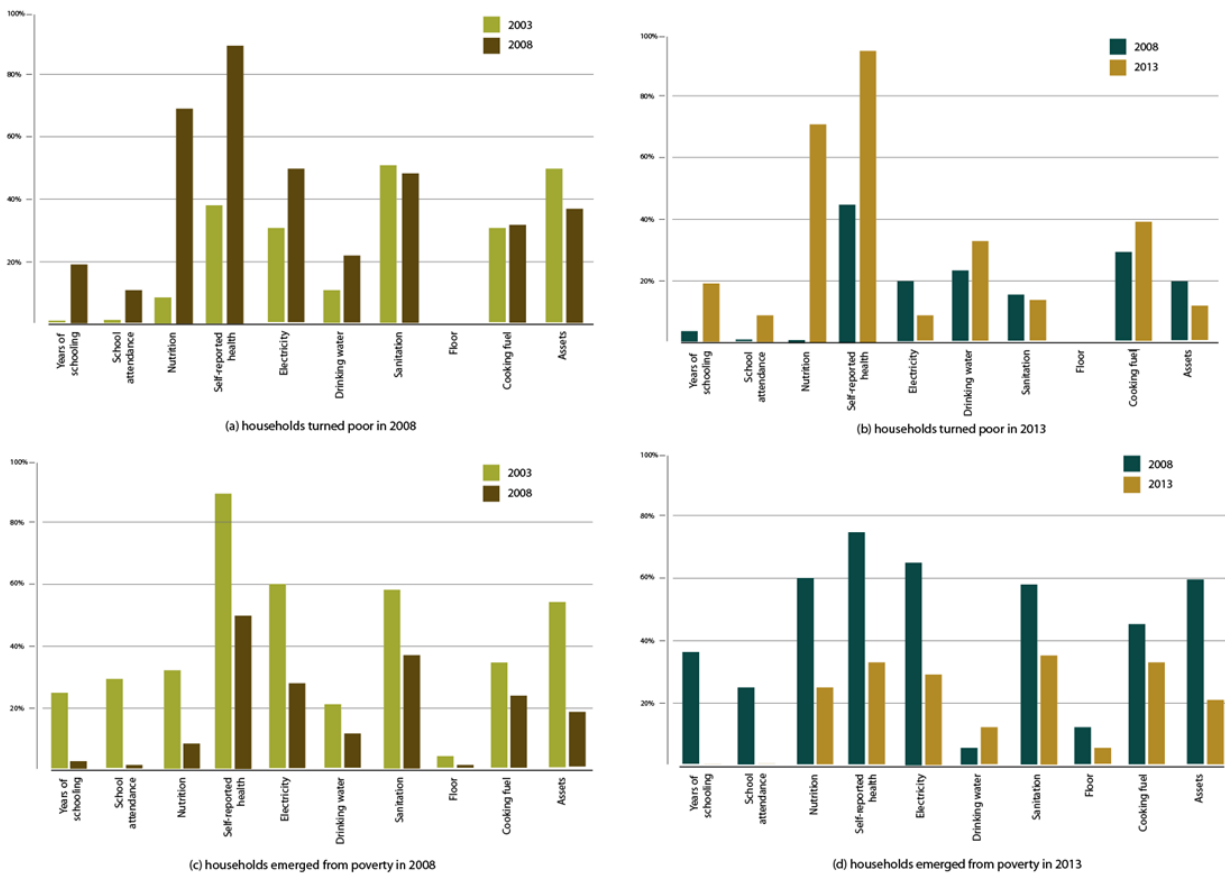
	always poor	falling	rising	churning	non-poor
National	13.0%	4.9%	33.0%	11.5%	37.6%
Urban	1.0%	4.5%	23.7%	12.3%	58.5%
Rural with road	16.1%	5.1%	37.2%	11.1%	30.5%
Rural without road	34.5%	4.9%	37.6%	11.0%	12.0%
Northern region	26.7%	4.5%	39.4%	10.2%	19.2%
Central region	7.3%	4.8%	28.6%	11.4%	47.9%
Southern region	11.5%	5.4%	35.2%	12.6%	35.3%
Lao-Tai	3.6%	5.3%	30.5%	11.9%	48.7%
Mon-Khmer	31.3%	4.8%	41.5%	12.0%	10.4%
Chinese-Tibetan	55.3%	2.8%	26.3%	5.7%	9.9%
Hmong-Iumien	44.1%	0.7%	36.8%	9.2%	9.2%

Table 5 shows high dynamics for the time period between 2003 and 2013. Half of Laotian people moved in and out of poverty whereas the other 50% was either non-poor (37%) or always poor in the last decade (13%). Furthermore, movements out of poverty were reversible for a substantial number of them. Almost 20% of households that emerged from poverty in 2008 found themselves in multidimensional poverty again in 2013. Thus, the significant welfare improvements over the last decade were not shared by all Laotians.



The results for households living in urban areas are particularly surprising. Almost 60% of urban households never faced multiple deprivations during the last decade, meaning they were always non-poor compared to rural households, out of which only 30% and 12% respectively were non-poor in the same period. Moreover, between 15-30% of rural households were always poor between 2003 and 2013 compared to only 1% of urban households. Disaggregating the different poverty groups into the three regions of Laos shows that the Northern region has the highest percentage of households who were always poor between 2003 and 2013. However, the Northern region has also the highest percentage of households rising out of poverty during the same time. Overall, we see that the Northern and Southern regions show high dynamics in poverty, whereas in the Central region more than half of the households were either always non-poor or, to a lesser extent, always poor (5%).

Looking at poverty dynamics among ethnolinguistic families, the disparities become even more pronounced. Whereas only half of Lao-Tai people were affected by poverty between 2003 and 2013, this figure exceeds 90% for households belonging to the ethnolinguistic minority groups. Interestingly, the Lao-Tai have the highest percentage of households falling into poverty and, together with Mon-Khmer households, the highest rates of jumping in and out of poverty (churning). This finding is particularly interesting in view of where most people live, especially the Lao-Tai. The map in Figure A7 shows that



**Figure 6: Poverty dynamics in Laos between 2003 and 2013: (a) shows the indicator deprivation scores for households falling into poverty in 2008; (b) shows indicator deprivation scores for households turned poor in 2013; and (c) shows in which indicators households are still deprived when they emerged from poverty in 2008 and 2013 (d).**

Lao-Tai people live mainly in urban areas along the Mekong River close to the border with Thailand, where the majority of people make their living engaging in activities of the market economy and, less often, in the subsistence economy.

Finally, we analysed the indicator deprivation scores within households that entered and exited poverty between 2003 and 2013, to reveal possible drivers for exiting and entering poverty in Laos. In Figure 6 we present two charts respectively for households that entered, and households that exited, poverty. The first two graphs show indicator deprivation scores for households that (a) entered poverty in 2008 and (b) turned poor in 2013. The deprivation scores for the health dimensions of households falling into poverty in (a) and (b) stand out. The results indicate that out the considered indicators, nutrition and self-rated health status are the main drivers for a household's vulnerability to multidimensional poverty. In contrast, we see that households which emerged from poverty mainly did so through improvements in education, electricity access, assets, and also in the health dimension (Figure 6 (c) and (d)). For example, we see major improvements in the two education indicators with an average decrease of more than 80%, as well as for electricity and assets, with an average decrease of more than 50%.

## 5 Concluding remarks

This paper analysed Lao development between 2003 and 2013 using panel data on multidimensional poverty for the first time. We created an MPI for Laos which is strictly comparable across the analysed decade from 2003 to 2013, at the cost of being slightly different from the global MPI. Based on our comparable index we were able to shed light on development trajectories, and on winner and losers. We showed that, nationally, multidimensional poverty has fallen between 2003 and 2013, from almost 40% to 13% of people living in poverty. Thus, multidimensional poverty follows the same trend as standard monetary-based poverty measures such as the World Bank's USD 1.25 per day. However, focusing only on national averages bears the risk of "equity blindness", as Darrow (2012) criticised with respect to the MDGs. Similar concerns have been expressed by Jonathan Rigg (2015) and Amartya Sen (1999), who pointed out the shortcomings of only identifying the poor without taking into account their very different experiences and conditions of poverty. Decomposing the national poverty dynamics across

indicators and population subgroups in Laos, we find that poverty reduction was not the same for every Laotian during the observed period. This reduction was not uniform across indicators, nor across population subgroups. The improvement in education and living standard indicators was more pronounced compared to improvements in the health dimension. The deprivation in nutrition even increased for the whole society over the observed period. Furthermore, there are major disparities in how population subgroups profited from progress, e.g. among ethnolinguistic families but also geographically, between urban and rural areas. Among ethnolinguistic families, poverty reduction was slowest for the poorest group – the Chinese-Tibetan people, more than 60% of whom still live in multidimensional poverty. Similarly, for geographic areas, poverty reduction was lowest for households in rural areas without road access.

Against the background of high rates of economic growth, on average over 6% per year, and remarkable poverty reduction during the last decade in Laos, these findings are of particular importance and policy relevance. Standard development practices advocate market-led development, with increasing incomes eventually leading to the empowerment of people. Our findings indicate that significant poverty reduction at national level does not mean that the improvements were distributed equally. While the improvements in education, electricity, and sanitation are remarkable, it is notable that some ethnic minority groups – especially the Chinese-Tibetan people – did not benefit as much from progress in these indicators as other ethnolinguistic families. For advocates of market-led development, the designated solution to these disparities is pro-poor growth (Ravallion, 2001; Pattillo et al., 2005). Pointing to the ongoing debate on the definition of pro-poor growth, Klasen (2008) identifies two main camps: A “relative” camp which suggests that growth can only be called pro-poor if the growth rate of income of the poor exceeds the average income growth rate. A second camp is concerned with absolute definitions saying that growth is pro-poor only if the “absolute” income gain of the poor is larger than for those on average (or those of the non-poor). Everybody would agree on the importance of pro-poor

growth for poverty reduction if the two conditions for pro-poor growth – positive income growth of the poor and pro-poor distributional change – were fulfilled. But for most countries, income growth was pro-poor only in the relative sense, but strongly anti-poor in the absolute sense (Klasen, 2008). Rigg (2015, 7) goes even further, stating that ‘the poor have also been, relatively and sometimes absolutely speaking, harmed by growth’. Thus, according to Rigg, the question is whether development is understood as growth or as change for the better.

Understanding development as growth would lead to the conclusion that the remarkable economic growth during the last decade has led to considerable poverty reduction in both monetary and multidimensional terms. Confining the analysis to national-level data eclipses the needs of those who require different forms of support, policy, or broader transformations within society that take time, and eventually lead to an understanding of development as change for the better. For example, the Chinese-Tibetan ethnolinguistic group living in the Northern region near the Chinese border showed a reduced monetary poverty headcount from 21% in 2003 to 16% in 2013, according to official statistics (Lao PDR 2015). At the same time, however, our results showed that when assessing their well-being with an MPI, more than 60% are still classified as “poor”. Moreover, in terms of education indicators, Chinese-Tibetan people have a significantly higher deprivation score than other ethnolinguistic families. A possible explanation for this difference between monetary and multidimensional poverty measurement was given by the Prime Minister of Bhutan, Tshering Tobgay, at the side meeting for the global MPI during the UN General Assembly in September 2015: ‘The MPI identifies people who are poor because of gaps in infrastructure and social services even where people are not income poor. They may be living in remote areas but because of the price of a very valuable cash crop people may not be income poor but otherwise they are still poor’. Our findings therefore clearly point towards a need to complement the traditional monetary-based poverty measures with multidimensional ones.

Finally, we analysed the dynamics of poverty looking at households that turned poor during the period we observed: the falling poor or, according to Rigg (2015), the produced poor – those whose poverty is linked to the very processes that generated growth. We found that while 33% of the observed households emerged from poverty between 2003 and 2013, 5% turned poor. Moreover, from the households emerging from poverty in 2008, one-fifth fell back into poverty in 2013. For households that turned poor in 2008 or in 2013, we found increasing deprivations in nutrition and self-rated health status. Linking these findings to Rigg’s statement that sometimes the poor have also been harmed by growth, we can hypothesise that the very processes that generated growth have led to increasing deprivations in nutrition and self-rated health status at the same time. In Laos, more than half of the economic growth is attributed to large-scale land acquisition (LSLA) and investments in hydropower and mining, which entail dispossessions and a shift from engagements in subsistence-oriented economies to market-oriented economies (Dwyer 2007; Messerli et al. 2014; Gironde et al. 2014; Friis 2015). For example, Gironde et al. 2014 found that dispossession is severe in particular for land used for swidden agriculture, as the Lao government, arguing that those areas were “uncultivated”, has facilitated the granting of concessions. Intensifying their engagement in wage labour, people increasingly buy food items (e.g. meat, fish, and vegetables) that they used to produce or collect by themselves. As a consequence, they are more dependent on markets for providing these goods, and thus vulnerable to price or supply shocks. This could be one possible explanation for the observed increase in nutrition deprivation. Thus, while market-led development was successful in reducing the levels of both monetary and multidimensional poverty, this came at the cost of higher food insecurity.

To conclude, we touch upon a few issues that go beyond the scope of this paper but should be part of future research. First, we noticed that the rankings in poverty levels among ethnolinguistic households, especially Chinese-Tibetan households, differ when measured using the multidimensional

approach as compared to the monetary approach. It should be noted that indicators of the multidimensional approach measure direct deprivation such as being undernourished or not having electricity. Therefore, if a monetary approach does not capture these differences in direct deprivation, it should be complemented by multidimensional approaches. Second, panel data allow comparisons between subgroups experiencing different patterns of multidimensional poverty, to ascertain entry points for policies that might be more effective in eradicating multidimensional poverty. Thus, if development is to be seen as substantive change for the better, it is crucial to have appropriate data for policy decisions (i.e. panel data for relevant indicators of multidimensional poverty). For example, for this study we had to construct a new indicator for nutrition, due to changes in methodology between the Lao Consumption and Expenditure Survey (LECS) 3 and LECS 5. Finally, a key issue to be addressed in future studies is the selection of indicators. This is particularly true for Laos as a representative of fast-growing economies based on the exploitation of natural resources. Until now, the selection of multidimensional poverty indicators was driven by the availability of data. However, future research should find ways to include indicators related to environmental conditions, such as risk to natural disasters, vulnerability to the depletion of natural resources as a result of intensified exploitation, or food insecurity due to dependency on markets. Not least, the MPI has the potential to accommodate poverty indicators that reflect the poverty experience of individuals and social groups. This could be a further step towards analysing specific reasons for the perseverance of poverty – and finding pathways out of it.

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<sup>i</sup> The continuous evolution of differences in the cost of living across the world necessitates periodical updates to the global monetary poverty line. As of 2008, the World Bank used USD 1.25 as the global poverty line. Although this was updated to USD 1.90 in October 2015, this study refers to the USD 1.25 poverty line, since the data used for the analysis are from the years 2003 until 2013.

<sup>ii</sup> The New Economic Mechanism was set out by the Fourth Party Congress in 1986. The main objectives of this plan were to create the structure for growth in agriculture–forestry, industry, and services. Furthermore, an open–door policy was promoted for foreign cooperation and the privatization of former state enterprises.

<sup>iii</sup> A full description is provided in the report by Nina Fenton, 2015.

<sup>iv</sup> For a detailed description of how to calculate the adjusted headcount ratio M0 based on Alkire and Foster (2011), please refer to recently published methodological guidelines by Alkire et al. (2015) *Multidimensional Poverty Measurement and Analysis*.

<sup>v</sup> Children start school at the age of six. In Laos’s current educational system, primary school is compulsory and comprises five years of schooling. This is followed by three years of lower secondary, three years of upper secondary, and then three to seven years of post–secondary education. For the purpose of this study we define school age as lasting from ages six to 11.



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## ANNEX

Table A.6: Selection of dimensions, indicators, deprivation cut-offs, and weights

Dimension	Indicators	Deprived if:	Weights
Education			1/3
	Years of schooling	No household member has completed five years of schooling	[1/6]
	School attendance	At least one school-age child (years six to 11) is not attending school	[1/6]
Health			1/3
	Nutrition	Household has in both meat and fish consumption moderate deprivation or a severe deprivation in either one or the other	[1/6]
	Self-rated health status	At least one household member rated very bad or bad health status	[1/6]
Standard of living			1/3
	Electricity	Household has no electricity	[1/18]
	Sanitation	Household's sanitation facility is not improved or is shared	[1/18]
	Drinking water	Household does not have access to drinking water within walking distance of 30 minutes	[1/18]
	Floor	Household has dirt, sand, or dung floor	[1/18]
	Cooking fuel	Household cooks indoors with dung, wood, or charcoal	[1/18]
	Assets	Household owns no car and no more than one radio, TV, telephone, bike, or motorbike	[1/18]

Nested weights are indicated in [ ]

Table A.7: % of MPI poor deprived in indicator

Dimension	Indicator	2003	2008	2013	change
Education	Years of schooling	43.9%	37.5%	10.2%	-
	School attendance	39.7%	29.1%	24.0%	-
Health	Nutrition	39.0%	62.8%	70.5%	+
	Self-rated health	86.4%	79.3%	85.1%	-/+
Standard of living	Electricity	72.0%	60.4%	41.3%	-
	Drinking water	24.6%	11.5%	12.7%	-
	Sanitation	71.1%	58.0%	52.8%	-
	Floor	10.7%	14.8%	13.6%	+
	Cooking	44.4%	43.1%	46.7%	+
	Assets	71.9%	57.2%	40.2%	-

Table A.8: Raw deprivation headcounts for panel and non-panel households

Dimension	Indicator	2002/03		2007/08		2012/13	
		panel	non-panel	panel	non-panel	panel	non-panel
Education							
	Years of schooling	23.9%	27.2%	15.3%	16.4%	2.6%	3.7%
	School attendance	21.4%	22.4%	11.1%	12.0%	5.9%	7.0%
Health							
	Nutrition	22.9%	24.3%	26.6%	24.6%	25.7%	25.7%
	Self-rated health	69.2%	68.7%	57.8%	55.8%	49.5%	47.1%
Standard of living							
	Electricity	50.1%	51.4%	32.3%	32.4%	16.1%	20.7%
	Drinking water	19.9%	19.0%	17.6%	17.5%	34.1%	33.7%
	Sanitation	48.0%	52.0%	34.4%	35.7%	23.5%	27.2%
	Floor	6.1%	7.0%	6.0%	6.1%	4.6%	5.9%
	Cooking	33.9%	35.8%	32.5%	32.8%	38.3%	40.3%
	Assets	47.2%	49.6%	28.7%	31.1%	14.2%	18.1%

Table A.9: Food consumption classification system

<u>Cut-off</u>	<u>classification</u>
-1 to > -2 Z-Score	mild
-2 to -3 Z-Score	moderate
< -3 Z-Score	severe



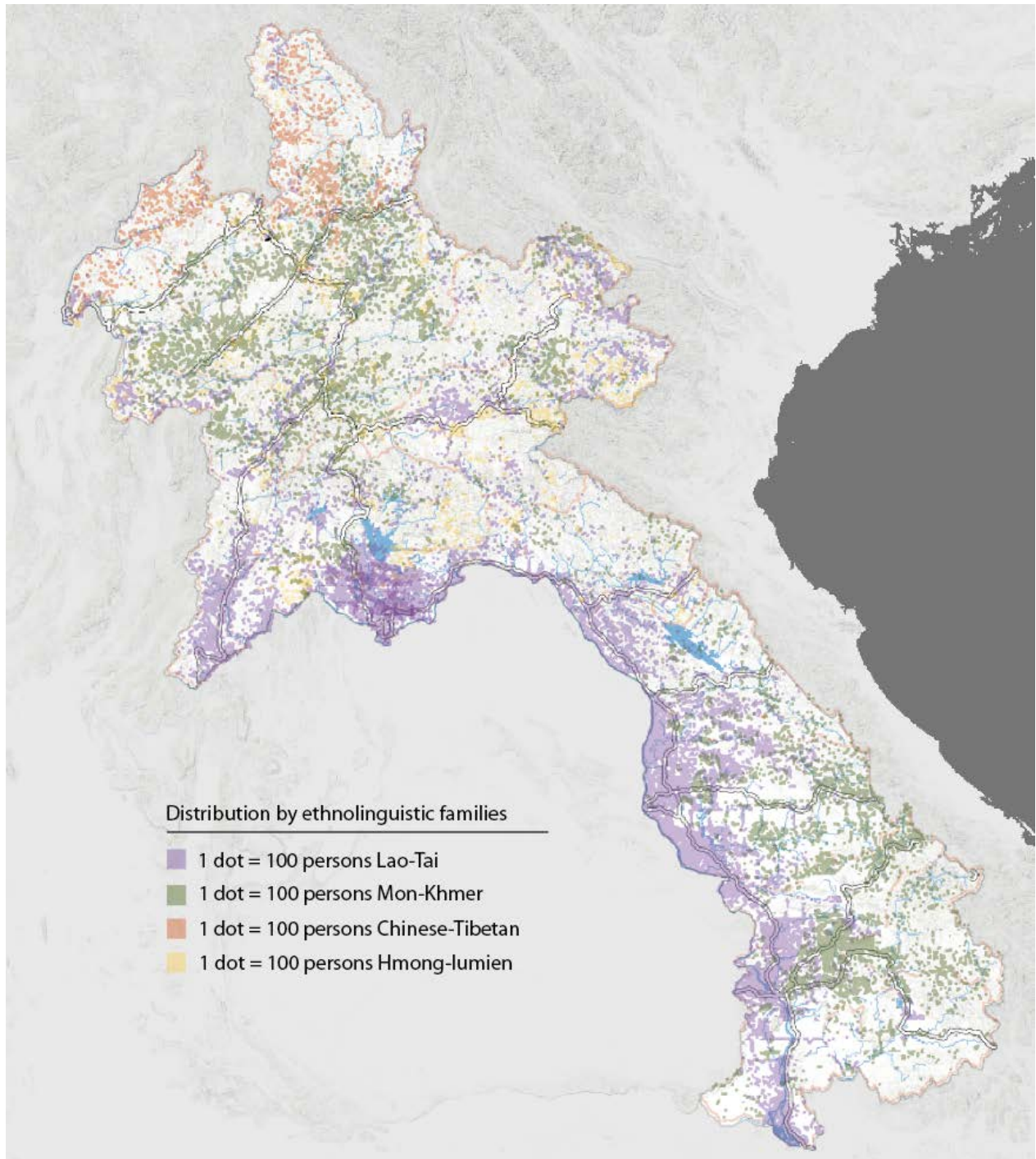


Figure A.7: Distribution by ethnolinguistic families