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Poverty in Lao PDR

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I. Introduction

Lao PDR is located in Southeast Asia, a region that has grown rapidly during the last three decades. Like its neighbor countries, the Lao PDR government has given a high priority to economic growth that enhances the welfare of its people. To accomplish this objective, the government has emphasized the importance of macroeconomic policy: maintaining a low inflation rate and promoting domestic and foreign investment.

Lao PDR has roughly 5 million people, a relatively small population in proportion to its landmass, compared with other countries in the region. What is more, Lao PDR is poor by Asian standards with an estimated per capita GDP of \$381 in 2000 (ADB Country Economic Review 2000). In 1995, the World Bank estimated that 46 percent of the Lao population lived in poverty in 1992-1993. In 1999, Statistics Sweden produced new poverty estimates showing that the percentage of poor was 44.6 and 39 percent in 1992-1993 and 1997-1998, respectively.

The Government of Lao PDR has not yet decided on an official poverty line. Two alternative poverty lines developed by the World Bank and Statistics Sweden give conflicting information on poverty incidence. The World Bank study shows that in 1992-1993, the Southern region was the poorest with a 60 percent poverty incidence, compared to 46 percent in the North and 40 percent in the Central region. The Swedish study, on the other hand, concludes that the North was the poorest with a 54.3 percent poverty incidence, compared to 48.8 percent in the South and 36.6 percent in the Central region. These conflicting results pose a challenge to any formulation of poverty reduction policies.

This study develops a new poverty line for Lao PDR, one that is more accurate and uses additional information on monthly food and nonfood consumer price indices from the Lao PDR National Statistical Center. The new poverty thresholds also take into account the different needs of household members by utilizing energy requirements that vary by age and sex.

This study presents an analysis of inequality and poverty in Lao PDR using the Lao Expenditure and Consumption Survey (LECS) conducted in 1992-1993 and 1997-1998. The LECS is a nationwide survey of 2,937 and 8,882 households, in 1992-1993 and 1997-1998, respectively. The poverty analysis is presented in terms of the incidence, depth and severity of poverty. The observed changes in poverty are explained by growth and inequality components.

An attempt has also been made to identify districts that can be categorized as poor so that policies can be formulated to target the poor at the local level.

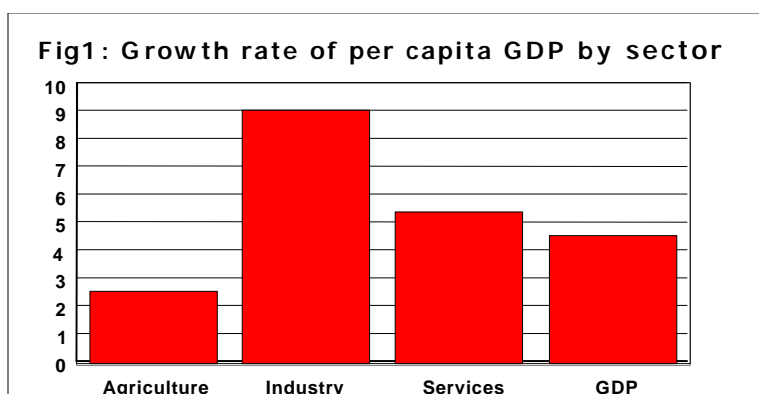
II. Economic Growth Rate in Lao PDR

Although economic growth in Lao PDR has not been as spectacular as in some of the Southeast Asian economies, the results in Table 1 show that per capita real GDP has grown at an annual rate of 4.6 percent between 1992-1993 and 1997-1998. As such, the Lao economy experienced strong growth in the 1990s until the onset of the economic crisis.

Table 1. Per capita real GDP and its growth rate

Sectors	1992-1993		1997-1998		Annual growth rate
	Value in kip per year	Percentage Shares	Value in kip per year	Percentage shares	
Agriculture	90733	57.7	103005	52.1	2.5
Industry	26376	16.8	41479	21.0	9.1
Services	37704	24.0	49417	25.0	5.4
GDP	157203	100.0	197552	100.0	4.6

Table 1 illustrates the structure of the Lao economy. The agricultural sector has grown at an annual rate of 2.5 percent, whereas the growth rate in the industrial sector has been 9.1 percent, resulting in a decline of the agricultural sector's share from 57.7 percent in 1992-1993 to 52.1 percent in 1997-1998. Although the structural transformation from a primary sector to a modern sector has occurred gradually in the Lao economy, agriculture is still the dominant sector producing more than 50 percent of total GDP.



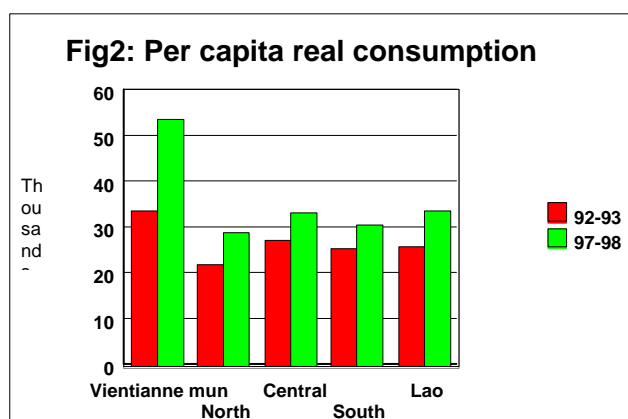
III. Growth Rate of Per Capita Real Consumption

Having observed that the economy has grown at an impressive rate, a relevant question is whether the benefits of economic growth have reached households and individuals. To answer this question, we computed the monthly per capita real consumption of food and nonfood by region (Table 2).¹ Per capita real food consumption was computed by deflating the nominal per capita food expenditure by the spatial food consumer price index (SFCPI) (Appendix B). Similarly, real per capita nonfood consumption was computed by deflating the nominal per capita nonfood consumption by the spatial nonfood consumer price index (SNFCPI) (Appendix B). Per capita real total consumption was computed as the sum of per capita real food and nonfood consumption.

According to Table 2, households (and individuals in these households) have indeed benefited from economic growth in the 1990s. Per capita real total consumption has increased at the annual rate of 5.8 percent over time, a faster rate of growth than in the per capita GDP during the same period.

March 1997 to Feb 1998=100 (Lao urban areas)

Regions	1992-1993	1997-1998	Growth rate
Vientianne mun	34676	59577	10.8
North	20184	25770	4.9
Central	25720	32586	4.7
South	23623	29504	4.4
Lao	24595	32848	5.8



1. Consumption includes all household expenditures on goods and services, and the value of imputed items such as home produced items, owner-occupied housing, and fetched firewood.

In general, as the economy goes through the stages of economic development, the share of nonfood items in people's consumption patterns becomes higher than that of food items. Not surprisingly, people in Lao PDR have spent increasingly more on the nonfood items in comparison with food. More specifically, per capita real nonfood consumption has grown at an annual rate of about 13.5 percent, whereas per capita real food consumption has increased at an annual rate of only 2.6 percent (Table 3).

As shown in Table 2, Vientiane Municipality is the richest region in terms of its monthly per capita consumption, and the Northern region is the poorest. Moreover, the annual growth rate in Vientiane Municipality's monthly per capita consumption has been 10.8 percent, far exceeding the other regions. Furthermore, although the North remains the poorest region in the country, it has grown faster than the Central and Southern regions: monthly per capita consumption in the North increased at an annual rate of 4.9 percent. Note that the South is better off than the North, but worse off than the Central region and Vientiane Municipality.

Table 3. **Monthly per capita real food and nonfood consumption by region,
March 1997 to Feb 1998=100 (Lao urban areas)**

Regions	1992-1993		1997-1998		Annual growth rates	
	Food	Nonfood	Food	Nonfood	Food	Nonfood
Vientiane mun	22099	12577	28040	31537	4.8	18.4
Northern region	16923	3260	18623	7147	1.9	15.7
Central region	19656	6065	21694	10893	2.0	11.7
Southern region	17856	5767	21123	8381	3.4	7.5
Lao PDR	18720	5876	21321	11527	2.6	13.5

Table 4 reveals the urban-rural differences in per capita real consumption. As expected, per capita real consumption in rural areas is much lower than in urban areas. More importantly, per capita real consumption in rural areas has grown at an annual rate of 5.4 percent, whereas the growth rate in urban areas has been 9.0 percent. Thus the rural-urban disparity increased between 1992-1993 and 1997-1998, as indicated by the decrease in rural consumption as a percentage of urban consumption, from 72.8 in 1992-1993 to 60.9 in 1997-1998 (Table 5). The rural-urban disparity is particularly large in the Southern region, where in 1992-1993 rural consumption was only 71.8 percent of urban consumption. This ratio declined further to 71.1 in 1997-1998.

The increasing disparity in rural-urban consumption should be of concern to the government because rural areas have much a lower standard of living than urban areas.

Table 4. **Per capita real consumption by region and rural and urban areas, March 1997 to Feb 1998=100 (Lao urban areas)**

Regions	1992-1993	Urban areas		1992-1993	Rural areas	
		1997-1998	Growth rate		1997-1998	Growth rate
Vientianne mun	36438	62098	10.7	29378	55304	12.7
Northern region	23498	32914	6.7	19495	24995	5.0
Central region	30111	42477	6.9	24872	31197	4.5
Southern region	30842	39938	5.2	22138	28378	5.0
Lao PDR	31035	48721	9.0	22609	29668	5.4

Table 5. **Rural real consumption as percentage of urban real consumption**

Regions	1992-1993	1997-1998	Difference
Vientianne mun	80.6	89.1	8.4
Northern region	83.0	75.9	-7.0
Central region	82.6	73.4	-9.2
Southern region	71.8	71.1	-0.7
Lao PDR	72.8	60.9	-12.0

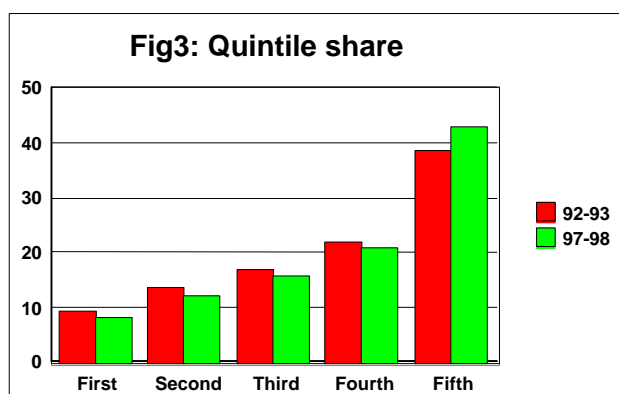
IV. Inequality

This study measured inequality by the Gini index, the most widely used measure of inequality. Since the Gini index is a single measure of inequality it may not completely reveal changes in income distribution, so we supplemented the Gini index with quintile shares.

The study measured inequality in per capita real consumption, taking into account regional differences in the cost of living and also changes in monthly consumer prices. The empirical results are presented in Table 6.

Table 6. **Inequality of per capita real consumption**

Regions/prov	1992-1993	1997-1998	Growth rate
Gini index	28.6	35.7	4.4
Quintile shares			
First	9.3	7.8	-3.5
Second	13.5	11.8	-2.7
Third	16.9	15.4	-1.8
Fourth	21.9	20.6	-1.2
Fifth	38.4	44.4	2.9

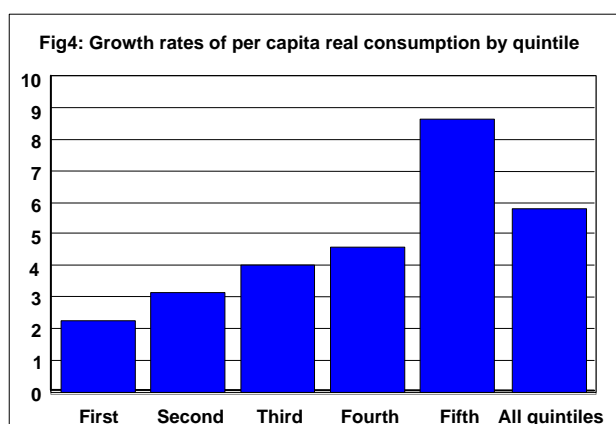


Compared to many Asian countries, inequality is low in Lao PDR. The bottom 20 percent of the population had a 9.3 percent share in per capita real consumption in 1992-1993, while the richest 20 percent had a 38.4 percent share in the same year. Unfortunately, the consumption share of the bottom quintile declined to 7.8 percent in 1997-1998, while that of the top quintile increased to 44.4 percent. The Gini index, an overall measure of inequality, increased from 28.6 percent in 1992-1993 to 35.7 percent in 1997-1998. Thus, equality in Lao PDR has eroded.

Increased inequality implies that the benefits of economic growth have not flowed uniformly across the population. The proportional benefits received by the poor are less than those of the rich. This disparity is evident from Table 7, which presents the growth rates of per capita real consumption for each quintile. As noted earlier, per capita real consumption in Lao PDR grew at an annual rate of 5.8 percent between 1992-1993 and 1997-1998, but the annual growth rate of the bottom quintile is only 2.3 percent, while that of the top quintile is 8.7 percent.

Table 7. **Growth rates of per capita real consumption by quintile**

Regions/prov	1992-1993	1997-1998	Growth rate
First	11490	12872	2.3
Second	16617	19432	3.1
Third	20726	25319	4.0
Fourth	26886	33768	4.6
Fifth	47258	72851	8.7
All quintiles	24595	32848	5.8



Despite much discussion of pro-poor growth, no precise meaning has yet been given. Following Kakwani and Pernia (2000), one may in simple terms define it as economic growth that proportionally benefits the poor more than the rich. Pro-poor growth is clearly not happening in Lao PDR. The proportional benefits of growth received by the rich are much greater than those of the poor. The country is, in fact, experiencing pro-rich growth, even though some of its benefits are trickling down to the poor.

V. Poverty

To analyze poverty, an estimated poverty line is of fundamental significance. A person is identified as poor if his/her income or consumption is below the poverty line. We constructed the new poverty line based on nutritional requirements of the Lao population. Appendix A explains the steps involved in constructing poverty lines. The new poverty line takes into account the different needs of household members as well as regional differences in the cost of living.

Poverty can be measured either by consumption or income. Consumption is believed to be the better measure because people tend to smooth out their consumption over time and thus fluctuation is much less than that of income. Moreover, the measurement of consumption is more precise than that of income. Thus, poverty estimates in this study are based on consumption.

This section focuses on three aspects of poverty, viz., incidence, depth and severity. The headcount ratio, the poverty-gap index and the Foster-Greer-Thorbecke index are poverty measures, discussed in turn, which analyze poverty in Lao PDR.

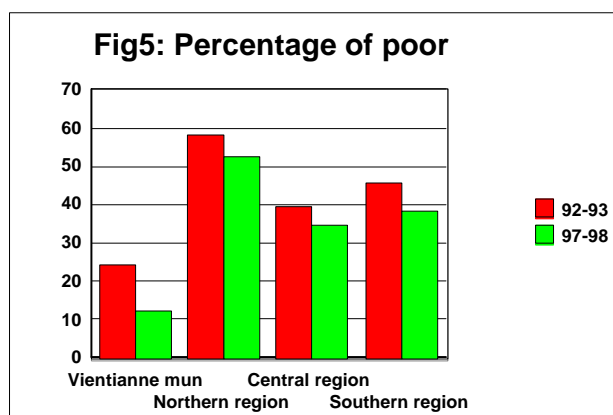
A. Incidence

To begin with, the most commonly used poverty measurement is the headcount ratio. It estimates the percentage of the population living in households with a per capita consumption below the poverty line. Hence, it measures the incidence of poverty. While the headcount ratio is easy to interpret, it says nothing about the depth or severity of poverty.

The incidence of poverty, estimated by region and province, is presented in Table 8. Empirical results show that 45 percent of the Lao PDR population lived in poverty in 1992-1993, and that the percentage of poor fell to 38.6 in 1997-1998. Thus the incidence of poverty fell at an annual rate of 3.1 percent. Although the rich have benefited much more than the poor, an annual poverty reduction rate of 3.1 percent indicates that the benefits of economic growth effectively trickled down to the poor between 1992-1993 and 1997-1998. If the same rate of poverty reduction continues, it will take more than 20 years for the percentage of poor to come down to about 20 percent. This is clearly a slow rate of poverty reduction. In the midst of rapid economic growth, the government needs to accelerate poverty reduction by implementing pro-poor policies.

Table 8. Percentage of poor by region and province

Regions/prov	1992-1993	1997-1998	Growth rate
Northern region	58.4	52.5	-2.1
Oudomxay	51.1	73.2	7.2
Luangnamtha	60.3	57.5	-1.0
Huaphanh	78.4	74.6	-1.0
Phongsaly	68.7	64.2	-1.3
Luangphrabang	62.7	49.4	-4.8
Xayaboury	30.1	21.2	-7.0
Bokeo	63.5	37.4	-10.6
Central region	39.5	34.9	-2.5
Borikhamxay	10.6	25.8	17.8
Khammuane	43.7	41.6	-1.0
Vientiane prov	28.1	24.3	-2.9
Savannakhet	45.7	37.1	-4.2
Xiengkhuang	57.3	34.9	-9.9
Xaysomboom-SR	55.0		
Southern region	45.9	38.4	-3.6
Saravane	36.7	39.6	1.5
Lao PDR	45.0	38.6	-3.1
Champasack	43.6	35.6	-4.1
Sekong	65.9	45.7	-7.3
Attapeu	72.2	45.3	-9.3
Vientiane mun	24.4	12.2	-13.9



As evidenced from Table 8, the incidence of poverty varies substantially across regions and provinces. Among the four regions the North has the highest percentage of poor, which fortunately fell from 58.4 percent in 1992-1993 to 52.5 percent in 1997-1998. In contrast, the incidence of poverty in Vientiane Municipality has been the lowest: poverty incidence was 24.4 percent in 1992-1993 and only 12.2 percent in 1997-1998. The South has the second highest proportion of people living in poverty. Note that our result is in contrast with a study by the World Bank (1995), which identified the South as the poorest region in 1992-1993. In addition to large differences in poverty incidence across regions, there are also differences between provinces. Huaphanh in the North is identified as the poorest province, where 78.4 percent of the population lived in poverty in 1992-1993. Although the percentage of poor decreased to 74.6 in 1997-1998, this province still remains the poorest in the country.

Among the 18 provinces, five had a poverty incidence exceeding 50 percent in 1997-1998. Of these five provinces, four are in the North, namely Phongsaly, Luangnamtha, Oudomxay and Huaphanh.

It is important to note that the reduction in poverty is not uniform across regions and provinces. In Vientiane municipality the percentage of poor decreased at an annual rate of 13.9 percent, whereas in the North the percentage of poor decreased at an annual rate of 2.1 percent. In the Central and Southern regions, the percentage of poor decreased at annual rates of 2.5 and 3.6 percent, respectively. Thus, not only is the North the poorest region in the country, but its rate of

poverty reduction is also the lowest. This is a counterintuitive finding, since the growth rate of per capita real consumption in the North is higher than in the Central and Southern regions. This finding can be explained by a sharper increase in inequality in the North, which dwarfed the impact that faster growth had on poverty reduction.

For three provinces, Oudomxay, Borikhamxay and Saravane, the incidence of poverty has in fact increased. These observations show that rapid economic growth does not necessarily lead to a uniform reduction in poverty across provinces.

B. Depth

The depth of poverty is measured by the poverty gap index, defined as the mean distance below the poverty line, where the mean is formed over the entire population, counting the nonpoor as having a zero poverty gap. Thus the sum of poverty gaps, aggregated across all individuals, reflects the minimum consumption that needs to be transferred to pull all the poor up to the poverty line.

The depth of poverty is shown in Table 9. The poverty gap index was 11.3 percent in 1997-8 as compared to 10.3 percent in 1992-3, showing that the depth of poverty decreased at an annual rate of 1.8 percent. Thus economic growth is less effective in reducing the depth of poverty than in reducing the poverty incidence.²

The poverty gap index varies widely across regions and provinces. By region, poverty has been much deeper in the North than in other regions. The depth of poverty in the North was 16.1 percent in 1992-1993, and remained almost the same in 1997-1998. Similarly, the poverty gap ratio in Vientiane municipality decreased at an annual rate of 10.3 percent, while in the Central and Southern regions the annual poverty reduction rates were 2.3 and 4.5 percent, respectively. Thus the North experienced the lowest reduction in the depth of poverty despite the fact that its growth in per capita consumption was higher than in the Central and Southern regions. The North's relatively unchanged depth of poverty is again due to a sharper increase in

2. Note that poverty gap figures are always expected to be relatively smaller than poverty incidence figures for the same period. These two poverty indicators are never comparable because they measure different aspects of poverty.

inequality in the North, which substantially reduced the impact of faster growth on poverty reduction.

Table 9. **Poverty gap ratio by region and province**

Regions/prov	1992-1993	1997-1998	Growth rate
Northern region	16.1	16.1	0.1
Oudomxay	11.3	27.0	17.5
Luangnamtha	15.5	18.5	3.5
Phongsaly	18.0	20.9	3.0
Huaphanh	26.7	25.8	-0.7
Luangphrabang	18.7	12.9	-7.4
Bokeo	14.6	9.1	-9.4
Xayaboury	6.6	3.7	
Central region	8.9	8.0	-2.3
Borikhamxay	3.4	6.0	11.2
Vientianne prov	5.4	4.9	-1.8
Savannakhet	9.0	8.2	-1.9
Khammuane	12.4	9.4	-5.6
Xiengkhuang	14.3	8.6	-10.1
Xaysomboom-SR	17.0		
Southern region	12.0	9.6	-4.5
Saravane	5.9	10.3	10.9
Lao PDR	11.3	10.3	-1.8
Champasack	11.2	8.6	-5.2
Sekong	25.1	13.4	-12.5
Attapeu	26.0	10.5	-18.1
Vientianne mun	4.3	2.6	-10.3

C. **Severity**

The severity of poverty is measured by the Foster-Greer-Thorbecke (FGT) index, the mean of the squared proportionate poverty gaps. Unlike the headcount ratio and the poverty gap index, it takes into account inequalities among the poor. The FGT index is sensitive to the distribution of consumption among the poor; the calculation more heavily weights those whose consumption falls far below the poverty line.

As illustrated in Table 10, the severity of poverty in Lao PDR declined at an annual rate of only 0.9 percent between 1992-1993 and 1997-1998. Unfortunately, the severity of poverty in the North increased at an annual rate of 1.8 percent. Since the severity of poverty measure

gives much more weight to the very poor and less weight to not so poor, its increase indicates that the ultra poor have suffered as a result of rapid economic growth. The benefits of economic growth are not reaching the ultra poor who are especially concentrated in the North. These results draw an important policy implication: the North requires the highest priority in the government's poverty reduction strategy.

Table 10. **Severity of poverty by region and province**

Regions/prov	1992-1993	1997-1998	change
Northern region	6.2	6.8	1.8
Oudomxay	3.3	13.3	27.6
Phongsaly	6.6	9.0	6.3
Luangnamtha	5.9	7.5	4.5
Huaphanh	12.2	11.3	-1.5
Bokeo	4.5	3.4	-5.6
Luangphrabang	7.5	4.7	-9.3
Xayaboury	2.2	1.0	-15.5
Central region	3.1	2.6	-3.2
Borikhamxay	1.6	2.0	4.6
Vientianne prov	1.5	1.5	-0.8
Savannakhet	2.7	2.5	-0.8
Xiengkhuang	5.0	3.2	-9.0
Khammuane	5.3	3.0	-11.4
Xaysomboom-SR	7.1		
Southern region	4.6	3.7	-4.3
Saravane	1.4	4.1	21.1
Lao PDR	4.2	4.0	-0.9
Champasack	4.1	3.2	-4.5
Sekong	11.6	5.6	-14.5
Attapeu	11.9	3.5	-24.7
Vientianne mun	1.2	0.8	-7.6

VI. Reasons for Poverty Reduction

The degree of poverty depends on two factors: the average level of expenditure (welfare) and the extent of inequality in the expenditure's distribution. While an increase in average expenditure reduces poverty, an increase in inequality increases poverty. Since economic growth in Lao PDR is accompanied by a sharp increase in inequality, it will be useful to measure separately the impacts of growth and inequality on the change in poverty. We used a decomposition method (Kakwani 2000) that expresses the total change in poverty as the sum of growth and inequality components. The results for different poverty measures are presented in Table 11.

Table 11. **Growth and inequality effects of poverty reduction**

Poverty indicators	Change explained by		Total Change
	Growth	Inequality	
% of poor	-14.8	11.8	-3.1
Poverty gap	-19.5	17.6	-1.8
Severity of poverty	-13.4	12.5	-0.9

The percentage of poor decreased at an annual rate of 3.1 percent between 1992-1993 and 1997-1998, the sum of -14.8 and 11.8 percent of growth and inequality components, respectively. This figure implies that if inequality had not increased, economic growth would have reduced the percentage of poor at an annual rate of 14.8, while the actual reduction in the percentage of poor was at an annual rate of only 3.1 percent. Thus, the increase in inequality had an impact of increasing poverty at an annual rate of 11.8 percent. Although economic growth has played a dominant role in reducing poverty in Lao PDR, its impact would have been much greater if it were not accompanied by a sharp increase in inequality. Greater inequality has increased the depth and severity of poverty. Therefore, the growth process in Lao PDR has not been pro-poor, suggesting that it has benefited the rich much more than the poor.

While it seems that the Lao government should continue to follow growth-enhancing policies, it should also better target specific groups that are unable to reap the full benefits of growth. Many ethnic groups in Lao PDR are unable to take part in the country's economic activities. As a result, they continue to be poor despite high economic growth. Many are living in isolated areas and might have been excluded from the survey. How to integrate these people into mainstream economic activities is a challenging task and an overarching policy issue in Lao PDR.

VII. Urban-Rural Differences

Having examined poverty from three different aspects according to region and province, we now look at poverty incidence in urban and rural areas. In Table 12, the urban-rural disparity in poverty incidence is large: in 1992-1993 the incidence was 33.1 percent for urban areas, and 48.7 percent for rural areas. Large urban-rural differences in the percentage of poor are prevalent across regions. This difference implies that economic development has been biased against rural areas in Lao PDR.

As noted earlier, per capita real consumption increased at annual rates of 9.0 and 5.4 percent in urban and rural areas, respectively. On average, economic growth benefited urban areas much more than rural areas. From this information we would expect a much higher rate of poverty reduction in urban areas compared to rural areas. However, this has not happened. The annual rate of urban poverty decreased by 4.2 percent, whereas the annual rate of rural poverty decreased by 3.4 percent. The gap and severity measures of poverty show an increase in urban poverty between 1992-1993 and 1997-1998, despite substantial consumption growth. This result indicates that economic growth has adversely impacted the very poor in urban areas. Adverse impacts of urban growth have been most severe in urban areas of the North and South.

Table 13 provides some explanation of poverty increases in urban areas. The severity of poverty measure increased at an annual rate of 4.3 percent in urban areas. Strong economic growth in urban areas contributed to a 44.4 percent annual poverty reduction rate. The increase in inequality that accompanied the growth contributed to an increase in inequality by 48.8 percent; the net effect was a 4.3 percent increase in poverty. These results make an important point that economic growth does not necessarily reduce poverty, if accompanied by a large increase in inequality. In rural areas, the incidence of poverty decreased more rapidly because the increase in inequality was small, contributing to a very small increase in poverty.

Table 12. Incidence of poverty, by region and urban and rural area

Regions	Urban areas			Rural areas		
	1992-1993	1997-1998	Growth rate	1992-1993	1997-1998	Growth rate
Percentage of poor						
Central region	37.42	27.65	-6.1	39.89	35.89	-2.1
North	48.93	43.27	-2.5	60.4	53.53	-2.4
Lao PDR	33.14	26.86	-4.2	48.66	40.97	-3.4
South	27.64	35.84	5.2	49.62	38.66	-5.0
Vientianne mun	22.46	16.7	-5.9	30.14	4.47	-38.2
Poverty gap ratio						
North	9.479	11.892	4.5	17.43	16.605	-1.0
Central region	8.829	6.921	-4.9	8.954	8.125	-1.9
Lao PDR	6.794	6.946	0.4	12.652	10.954	-2.9
South	5.311	10.635	13.9	13.402	9.502	-6.9
Vientianne mun	4.297	3.782	-2.6	4.472	0.579	-40.9
Severity of poverty						
North	2.68	4.53	10.5	6.971	7.083	0.3
Lao PDR	2.066	2.564	4.3	4.795	4.245	-2.4
Central region	2.906	2.409	-3.8	3.09	2.641	-3.1
South	1.595	4.461	20.6	5.178	3.597	-7.3
Vientianne mun	1.291	1.281	-0.2	1.075	0.113	-45.1

Table 13. Growth and inequality effects of poverty reduction, by rural and urban area

Area	Explained by Growth	Total Inequality	Change
Percentage of poor			
Urban areas	-33.7	29.5	-4.2
Rural areas	-15.4	12.0	-3.4
Total	-14.8	11.8	-3.1
Poverty gap ratio			
Urban areas	-41.7	42.2	0.4
Rural areas	-20.2	17.3	-2.9
Total	-19.5	17.6	-1.8
Severity of poverty			
Urban areas	-44.4	48.8	4.3
Rural areas	-10.9	8.5	-2.4
Total	-13.4	12.5	-0.9

VIII. How Can We Identify Poor Districts?

There are 18 provinces in Lao PDR, each of which has many districts. The sample size can be very small at the district level, and thus the poverty estimates at the district level need to be used with caution. However, the methodology used here to identify a poor district addresses the issue of small sample size.

First, we need to define a poor district. Since the percentage of poor at the national level was 38.6 percent in 1997-1998, it is reasonable to assume a district to be poor if more than 50 percent of its population is poor. Our null hypothesis is that the percentage of poor people in a district is 50 percent or less. The alternative hypothesis will obviously be that more than 50 percent of the population is poor. So we identify a district to be poor if we reject the null hypothesis at the 5 percent significance level.

If p is an estimate of the percentage of poor based on a sample of size n , then its standard error under the null hypothesis will be $100 \times \sqrt{\frac{0.5 \times 0.5}{n}}$. Since we are using a one-tail test, the hypothesis will be rejected at the 5 percent significance level if

$$P > 50 + 1.67 \times 100 \times \sqrt{\frac{0.5 \times 0.5}{n}}.$$

If on the basis of a district sample we reject the null hypothesis using this decision rule, the probability will be less than 0.05 that the district will be nonpoor. Alternatively, if a district is identified as poor then it will be poor with more than a 95 percent probability. This procedure helps us to identify fairly accurately a poor district. However, there is one problem with this approach. If for a district the null hypothesis is not rejected, it does not imply that the district will always be nonpoor. This situation can occur when the sample for that district is very small.

Table 14 identifies poor provinces and districts. It also presents the number of poor in each province and district. Of Lao PDR's total population of 5.09 million, 1.85 million are poor. Of 18 provinces, three are identified as poor. Among 128 districts sampled for the survey, 28 districts fell into the category of poor.

Table 14. Identification of poor districts in Lao PDR

% of poor	Province	District	pop	poor	Poor dist
94.5	Houa Phan	Viengthong	10726	10134	poor
88.0		Xam Tay	45492	40051	poor
81.6		Xieng Kho	92575	75578	poor
77.1		Houa Meuang	26326	20305	poor
76.2		Viengxay	32390	24675	poor
51.8		Xam Neua	70382	36423	
74.6		Province Total	277891	207168	POOR
92.5	Oudomxay	Na Mo	36229	33494	poor
80.5		Houn	60153	48393	poor
72.6		Beng	26196	19018	
66.7		Nga	15757	10502	
63.5		Pak Beng	29126	18480	
60.6		La	11486	6958	
59.2		Xay	42512	25154	
73.2		Province Total	221458	161997	POOR
96.2	Phongsaly	Samphanh	19428	18696	poor
83.1		May	16802	13957	poor
79.0		Nhot Ou	32817	25919	poor
54.2		Boun Neua	20557	11146	
47.9		Phongsaly	15751	7537	
45.3		Khoa	33995	15393	
40.0		Boun Tay	12971	5182	
64.2		Province Total	152322	97836	POOR
90.3	Louang Namtha	Vieng Phoukha	13200	11916	poor
79.7		Nalè	24710	19699	poor
56.7		Sing	28903	16397	
44.0		Namtha	26841	11797	
37.4		Long	29583	11070	
57.5		Province Total	123237	70874	
74.8	Xaysomboun-SR	Thathom	8588	6420	poor
59.7		Xaysomboun	13896	8293	

57.3		Longxane	6145	3519	
49.5		Hom	26743	13238	
37.0		Phoun	5795	2145	
55.0		Province Total	61167	33617	
89.1	Louang Prabang	Phonxay	10556	9404	poor
78.4		Pak Xeng	29409	23065	poor
64.7		Viengkham	38074	24638	
53.4		Ngoy	25438	13579	
52.3		Nan	27240	14233	
50.4		Chomphet	53590	27009	
49.5		Nam Bak	81529	40316	
41.8		Louang Prabang	45032	18832	
30.0		Pak Ou	32988	9910	
27.7		Xieng Ngeun	52112	14445	
49.4		Province Total	395968	195450	
65.6	Xékong	Dak Cheung	17631	11561	poor
62.6		Kaleum	10255	6422	
35.5		Lamam	24696	8772	
31.6		Thateng	19412	6132	
45.7		Province Total	71994	32887	
87.6	Attapeu	Sanxay	6854	6002	poor
70.7		Phouvong	15831	11199	poor
50.4		Sanamxay	23988	12085	
30.6		Samakhixay	21178	6478	
30.0		Xaysettha	32876	9876	
45.3		Province Total	100728	45640	
90.3	Khammouane	Xébangfay	37420	33775	poor
74.2		Gnommarath	15698	11646	poor
67.2		Boualapha	14702	9884	
57.5		Mahaxay	42633	24518	
52.3		Xaybouathong	22650	11850	
32.0		Nong Bok	58386	18701	
26.6		Hin Boun	74499	19802	
11.7		Thakhek	65053	7605	
41.6		Province Total	331044	137781	
87.1	Saravanh	Ta Oy	23808	20744	poor
73.7		Samouay	8480	6253	
71.0		Toumlane	19459	13806	
42.8		Lakhonpheng	28530	12217	
40.6		Vapy	35642	14460	
34.7		Khongxédon	20995	7289	
33.5		Saravanh	95903	32156	
12.6		Lao Ngam	55099	6937	
39.6		Province Total	287917	113871	
63.0	Bokeo	Pha Oudom	32219	20282	
45.5		Pak Tha	16713	7596	
30.4		Houay Xai	48802	14831	
24.5		Moeng	3764	923	
10.1		Ton Pheung	20844	2111	
37.4		Province Total	122342	45744	
74.5	Savannakhet	Xépon	29794	22200	poor
67.8		Outhoumphone	67942	46051	poor
63.9		Vilabouly	70612	45142	
56.6		Xonbouly	32565	18445	
41.1		Atsaphone	81406	33474	

31.5		Champhone	91666	28902	
29.3		Atsaphangthong	49350	14450	
23.3		Songkhone	167305	38982	
20.6		Khanthabouly	114419	23525	
17.6		Xaybouly	50722	8947	
37.1		Province Total	755781	280092	
78.7	Champasak	Soukoumma	27376	21545	poor
54.8		Phongthong	65404	35861	
52.3		Ba Chieng	40548	21223	
34.5		Paksé	71252	24589	
33.0		Khong	101771	33534	
26.1		Mounlapamok	27768	7245	
25.8		Champasak	18847	4868	
24.9		Pakxong	57168	14223	
24.4		Pathoumphone	70328	17132	
22.7		Sanasomboun	72291	16425	
35.6		Province Total	552752	196669	
74.6	Xieng Khoang	Kham	10231	7627	poor
51.9		Phou Kout	16307	8462	
40.3		Phaxay	18766	7559	
38.8		Nong Het	40712	15784	
34.7		Khoun	38656	13425	
29.4		Pek	75478	22221	
20.5		Mok May	36759	7539	
34.9		Province Total	236909	82610	
53.5	Borikhamxay	Khamkeut	36296	19404	
45.0		Viengthong	23765	10697	
21.4		Bolikhanh	24841	5309	
17.1		Pak Kading	39819	6805	
7.3		Pakxanh	19173	1398	
2.4		Thaphabath	28082	674	
25.8		Province Total	171976	44284	
50.8	Vientiane prov	Keo Oudom	3616	1837	
41.1		Xanakham	41737	17150	
36.0		Kasy	51890	18665	
30.8		Feuang	32284	9950	
18.9		Phonhong	90501	17078	
18.5		Vang Vieng	36232	6688	
12.2		Thoulakhom	76591	9344	
24.3		Province Total	332850	80716	
61.4	Xaygnaboury	- Xieng Hone	29459	18085	
33.6		- Phiang	33488	11252	
31.9		Xaygnaboury	43209	13792	
22.9		- Khop	14281	3270	
18.7		- Hongsa	28977	5410	
17.3		-Kènethao	33965	5869	
10.1		- Pak Lai	78299	7885	
6.8		Botène	12821	869	
6.4		Ngeun	18272	1166	
21.2		Province Total	318538	67594	
21.2	Vientiane mun	Nasaythong	24673	5233	
17.3		Hatsaifong	65592	11334	
16.6		Chanthaboury	68265	11346	
15.6		Sisattanak	55576	8687	
14.5		May Pak Ngeum	62903	9115	

11.5	Sikhottabong	83776	9617
11.3	Xaysettha	81587	9211
3.9	Xaythany	129766	5035
12.2	Province Total	572138	69572
<hr/>			
38.6	Country Total	5087542	1964809

IX. Conclusion

Although economic growth in Lao PDR has been less spectacular than in other Southeast Asian countries, per capita GDP grew at an annual rate of 4.6 percent between 1992-1993 and 1997-1998. The agricultural sector still produces more than 50 percent of total output but there has been a gradual shift in output share from the agricultural sector to the industrial sector.

Per capita real consumption increased at an annual rate of 5.8 percent between 1992-1993 and 1997-1998. The increase means that the benefits of economic growth are indeed flowing to individuals. Unfortunately though, economic growth has not been uniform across the regions and there are regional disparities in the standard of living. While Vientiane Municipality is the richest region in terms of per capita real consumption, the North is the poorest. The South is better off than the North, but worse off than the Central region and Vientiane Municipality.

As expected, per capita real consumption in rural areas is much lower than in urban areas. More importantly, the urban-rural disparity has increased. Rural per capita real consumption as a percentage of urban per capita real consumption declined from 72.8 to 60.9 between 1992-1993 and 1997-1998. The increasing urban-rural consumption disparity should be of concern to the government because rural areas have much lower standards of living than urban areas.

Compared to many other Asian countries, inequality in Lao PDR is not high. The bottom quintile had a 9.3 percent share in per capita real consumption in 1992-1993, whereas the richest quintile had a 38.4 percent consumption share. Unfortunately, the consumption share of the bottom 20 percent declined to 7.8 percent in 1997-1998, while that of the top 20 percent increased to 44.4 percent. The Gini index, an overall measure of inequality, increased from 28.6 percent in 1992-1993 to 35.7 percent in 1997-1998. Thus equality in Lao PDR has deteriorated sharply over time.

Increased inequality implies that the benefits of economic growth have not flowed uniformly across the population. The proportional benefits received by the poor are less than those of the rich.

Economic growth in Lao PDR has been pro-rich, even though some of the benefits are trickling down to the poor.

On the basis of new poverty thresholds developed in this study, 45 percent of the Lao population was found to be living in poverty in 1992-1993. Fortunately, the percentage of poor fell to 38.6 percent in 1997-1998. The incidence of poverty decreased at an annual rate of 3.1 percent. Although the rich have benefited much more than the poor, an annual poverty reduction rate of 3.1 percent indicates that the benefits of economic growth effectively trickled down to the poor between 1992-1993 and 1997-1998. If the same rate of poverty continues in future, it will take more than twenty years for the percentage of poor to come down to about 20 percent. This is clearly a slow rate of poverty reduction. Along with rapid economic growth, the government needs to accelerate poverty reduction by implementing more pro-poor policies.

Poverty incidence varies substantially across regions and provinces. Among the four major regions, the North has the highest incidence of poverty and Vientiane Municipality has the lowest. The South has the second highest proportion of poor. Among the 18 provinces, five had a poverty incidence exceeding 50 percent. Of these five provinces, four are in the North. More importantly, not only is the North the poorest region in Lao PDR, but its poverty reduction rate is also the lowest.

For Oudomxay, Borikhamxay and Sarvane provinces, poverty incidence increased between 1992-1993 and 1997-1998. This increase shows that rapid economic growth does not necessarily result in uniform poverty reduction across provinces. Rapid economic growth may adversely affect some provinces. To achieve a broad-based growth, the government needs to develop regional or even provincial development policies in addition to promoting overall economic growth.

Growth's impact on poverty reduction (relative to the magnitude of rate) was much higher in rural areas than in urban areas. This impact is explained by a sharp increase in inequality, which accompanied urban growth and caused an increase in poverty. In rural areas, the increase in inequality was much smaller and the growth effect dominated the inequality effect. All in all, rural growth was more pro-poor than urban growth.

It seems that the Lao government should continue to implement growth-enhancing policies. It should also target specific groups that are unable to reap the full benefits of growth. Many ethnic groups in Lao PDR are unable to take part in the country's economic activities. As a

result, they continue to be poor despite the country's high economic growth. Many of them live in isolated areas and might have been excluded from this survey. How to integrate these people into mainstream economic activities is indeed a challenging task and an overarching policy issue. Economic growth alone will not be sufficient to achieve uniform poverty reduction across districts. This study has also identified the poor districts, which can be targeted to reduce poverty. It is also important that every district formulate its own poverty reduction strategy so that the poor households, wherever they are, have a chance to escape the vicious circle of poverty.

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Annex A. Construction of New Poverty Lines

I. Energy Requirements

The food poverty line is based on the calorie requirements of individuals or families. One can assume that an individual has access to adequate food if he/she obtains adequate nutrition. If an individual eats Asian food to fulfill his/her calorie requirements, then his/her protein requirements are automatically satisfied. Thus food norms based on individuals' energy needs are reasonable.

Since calorie norms vary from country to country depending race, climatic conditions, etc. it is important that the norms for studying Lao PDR are appropriate for the Lao population. Since these norms are not available for the Lao population, we use the calorie norms for the Thai population, available from Thailand's Ministry of Public Health. Since the Lao population is quite similar to the Thai population and faces similar climatic conditions, it is reasonable to use the Thai population's calorie norms. Annex Table 1 presents calorie requirements by age and sex, which are essential for an individual to have everyday. Calorie requirements vary substantially by age and sex. Children need fewer calories than adults. Also, males require considerably more calories than females. One cannot and should not use the same calorie norm for all individuals within a household. Recognizing that households differ with respect to calorie needs, we allocated the calorie requirements set out in Annex Table1 to each household in the survey, according to the age and sex of each individual in the household.

Lao PDR has no official poverty line. In 1995 the World Bank constructed a poverty line on the assumption that every individual in each household requires 2100 calories per day irrespective of his/her age and sex. More recently, Statistics Sweden (1999) developed another poverty line, again assuming a norm of 2100 calories per day for every member of the household. The calorie requirements in Annex Table1 show, however, that this assumption is unrealistic. A child aged 1 to 3 years requires only 1200 calories per day, whereas an adult male may require as many as 2787 calories per day. The World Bank and Swedish poverty lines are biased in favor of families with children.

Annex Table1. **Calorie requirements by age and sex**

Age	Male	Female
1 to 3	1200	1200
4 to 6	1450	1450
7 to 9	1600	1600
10 to 12	1850	1700
13 to 15	2300	2000
16 to 19	2400	1850
20 to 29	2787	2017
30 to 59	2767	2075
60+	1969	1747

To obtain the population's average calorie requirements, one aggregates the per person calorie requirement for each individual in the sample. This aggregation uses a weighted average, in which weight is equal to the population weight of each sample household. The results are presented for urban and rural areas in each region (Annex Table 2).

Annex Table 2. **Average calorie requirements of the Lao population, based on the 1997-1998 survey**

Regions	Urban	Rural	Total
Vientianne mun	2085	2043	2075
Northern region	1998	1986	1988
Central region	1994	1960	1967
Southern region	1974	1974	1974
Lao PDR	2009	1976	1983

The Lao PDR population in 1997-1998 required an average of 1983 calories per person per day. While a person in an urban area on average required 2009 calories per day, one in a rural area required 1976 calories per day. The higher proportion of younger and older people in rural areas explains the lower calorie requirement of rural areas. Average calorie requirements also tend to vary between regions, reflecting the regions' demographic differences.

II. Food Poverty Lines

A household's food poverty line is the amount of money required (per person per month) to satisfy the nutritional requirements of all its members. Having obtained the per person calorie requirement for a household, the next step is to find the cost of calories converted in kips. In other words, we want to find the number of calories that could be obtained by spending one kip on food. The calorie cost will obviously depend on the food basket we choose.

Availability and average price dictated the selection of food items for our basket. We selected 31 food items for the basket, the average monthly prices of which were available from National Statistical Centre (NSC). The list of these 31 items along with their caloric values is in Annex Table 3. The basket includes a wide range of food items generally consumed by the Lao population. The 31 items' average prices were given for the four cities, viz, Vientiane, Luangphrabang, Khammuane, Savannakhet and Champasack. The LECS2 provided the monthly expenditures on these 31 food items for each household in the survey. This information was sufficient to determine the calorie cost for each household, which was computed in terms of the number of calories obtained by spending one kip on food. The calorie cost varied from household to household. Richer households tend to have higher calorie costs than poorer households; richer households tend to eat more expensive foods such as meat and seafood, whereas poorer households consume larger quantities of staple foods such as rice. The food poverty line should be based on the consumption patterns of poor households.

Annex Table 3. **Caloric Values of the Food Basket**

Food items	Calorie per Kg
Rice	3550
Bread	3015
Noodle vermicelli	1285
Other noodles	3580
Beef	1233
Pork	3596
Chicken	1759
Fresh fish	900
Canned and frozen fish	900
Dried fish	2409
Fermented fish	2409
Bananas	830
Papayas	402
Oranges	430
Beans	360
Cabbage	370
Morning Glory	220
Cucumber	120
Dried Onions	300
Tomatoes	220
Spinach	220
Fresh chili	220
Bamboo	220
Sugar	3870
Sweets	3870
Salt	0
Fish sauces	332

Spices and seasoning	0
Condensed milk	4770
Chicken egg	1600
Duck egg	1860

To determine the consumption pattern of poor households, we ranked all sample households in the LECS2 according to per capita real total household consumption and grouped them into five quintiles. Then we calculated the average calorie cost in each quintile, which gave the lowest calorie cost for the first quintile (the poorest 20 percent of the population). For obvious reasons, we selected the average calorie cost of the population in the first quintile.

On the basis of our food basket, which reflects the consumption pattern of the Lao population's first quintile, we found that on average, 3.9 calories could be obtained for one kip in 1997-1998. We fixed the calorie cost of 3.9 per kip for the whole country. Since the cost of food varies in different regions and every month, we used the spatial food consumer price index (SFCPI given in Annex Table 8) to determine the calorie cost for each household. Note that calorie cost varies across households, depending on their location. Rural households have lower calorie costs than urban households.

Given the calorie requirements and calorie costs for each household, we calculate the food poverty line (dividing calorie requirement by calorie cost, measured in terms of calories obtained by spending one kip on food), which differs from household to household depending on household composition and location. Annex Table 4 presents the average food poverty line for each region as well as separately for rural and urban areas.

Annex Table 4. **Per capita per month food poverty line in 1997-1998**

Regions	Urban	Rural	Total
Vientianne mun	20504	17589	19422
Northern region	18016	13783	14197
Central region	19042	14677	15214
Southern region	17316	14170	14476
Lao PDR	19270	14407	15218

The average food poverty line in Lao PDR is computed to be 15218 kips per person per month in 1997-1998. The urban-rural differences in the average food poverty line reflect the urban-rural differences in food cost and household composition.

III. Nonfood Poverty Line

Having decided upon the food poverty lines, the next problem is to make an adjustment for nonfood consumption. This adjustment can be based on Engel's law, which states that households spending the same proportion of total expenditure on food enjoy the same level of welfare or standard of living. How do we find an appropriate value of food to total consumption ratio? We use Ravallion's (1998) idea that if a person's total income is just enough to reach the food threshold, anything that a person spends on nonfood items will be considered as basic nonfood needs. Thus we computed the average food to total consumption ratio for households whose per capita total consumption was equal to their food poverty line. Since the food poverty line varied from household to household, we modified the Ravallion approach:

- 1) First calculate a household's food welfare, defined as per capita household consumption multiplied by 100, divided by the household-specific per capita food poverty line.
- 2) Arrange the households in ascending order of food welfare using LECS2 data.
- 3) Select the households whose food welfare lies between 90 and 110.²
- 4) Calculate the ratio of food to total expenditure for individuals belonging to these households.

On the basis of the LECS2 data, the food to total expenditure ratio equals 80 percent. We apply this ratio to the average food poverty line of 15218 kips for Lao PDR, to obtain an average nonfood poverty line of 3966 kips per person per month for the entire 1997-1998 year. To calculate the nonfood poverty line for households in different locations and interviewed in different months, we use the spatial nonfood consumer price index (in Annex Table 8) so that the real value of the nonfood poverty line is the same for every household.

IV. Total Poverty Line

Each household's total poverty line is the sum of the food and nonfood poverty lines. The average total poverty line for each region is presented separately for urban and rural areas in Annex Table 5.

2. According to Ravallion, we should select households whose income is equal is equal to the food poverty line, which means we should select the households at the point where the household food welfare is equal to 100. Since it is impossible to calculate the ratio of food expenditure to total expenditure at a point, it is reasonable to select a range in the neighbourhood of 100. We selected a range of food welfare lying between 90 to 110.

Annex Table 5. **Per capita per month total poverty line 1997-1998**

Regions	Urban	Rural	Total
Vientianne mun	24802	21768	23676
Northern region	23749	18070	18626
Central region	23637	18264	18925
Southern region	21493	17644	18019
Lao PDR	23902	18239	19184

The average total poverty line for Lao PDR is estimated to equal 19184 kips per person per month in 1997-1998. For urban areas the average poverty line is 23902 kips per person per month, whereas for rural areas it is 18239 kips.

V. Updating the Poverty Lines

We have estimated monthly poverty lines for 1997-1998. Since our objective is to compare poverty estimates in 1992-1993 with those in 1997-1998, we need to determine monthly poverty lines in 1992-1993. To make these comparisons correctly, it is important that real poverty lines be the same in the two periods. This can be achieved by using the appropriate price indices. We determined the monthly food and nonfood poverty lines in 1992-1993 by applying food and nonfood price indices to the 1997-1998 poverty lines, separately for each month and each region, respectively. The food and total poverty lines for 1992-1993 are presented in Annex Tables 6 and 7, respectively.

Annex Table 6. **Per capita per month food poverty line 1992-1993**

Regions	Urban	Rural	Total
Vientianne mun	10211	7922	9640
Northern region	8737	6906	7221
Central region	9455	7320	7666
Southern region	8976	7083	7406
Lao PDR	9502	7150	7705

Annex Table 7. **Per capita per month total poverty line 1992-1993**

Regions	Urban	Rural	Total
Vientiane mun	11442	8838	10792
Northern region	10319	8084	8469
Central region	10732	8296	8691
Southern region	10226	8031	8406
Lao PDR	10829	8188	8811

Annex B. Spatial Price Indices

Costs of living often vary among a country's regions. Most studies on poverty (also inequality) likewise do not take account of spatial differences in the cost of living. This neglect biases the poverty and inequality estimates. Some of those identified as poor in the low cost areas will be better off than those identified as nonpoor in the high cost areas. Thus we mistakenly identify nonpoor as poor, and poor as nonpoor.

In this annex we construct the regional cost of living indices based on the monthly average prices that are available for five cities in 1997-1998: Vientiane Municipality, Luangprabang in the North, Khanmuane and Savanakheth in the Central region and Champasack in the South. We fix a reference basket and calculate the cost of the reference basket in each of the five cities. The average price index for the whole country equals 100. In the nonfood spatial price index, the large durable items such cars, motor bikes, refrigerators, private school fees etc. are excluded because these are not considered to affect the poor.

Since rural prices are not collected in Lao PDR, it was considered reasonable to assume that rural food prices are 20 percent lower than urban food prices. The rural urban price indices in Annex Table 8 were reduced uniformly for each region.

To construct food and nonfood poverty lines, we need to construct spatial price indices for 1992-1993. In 1992-1993, prices were collected only for Vientiane so the Consumer Price Indices were available only for Vientiane municipality. In 1997-1998 the official CPI for Lao PDR is the average of five cities. The official CPI for 1992-1993 cannot be compared with the official CPI for 1997-1998. In view of this difficulty, we used the CPI for Vientiane for 1997-1998 and compared it with the official CPI for 1992-1993. These indices are presented in Annex Table 9.

Annex Table 8. **Spatial Price Indices urban areas : Lao 1997-1998=100**

	Vientiane	North	Central	South	Lao
	Food				
March 97	94.9	83.0	88.1	85.7	88.4
April 97	96.3	83.7	87.9	88.7	89.4
May 97	99.4	86.4	95.2	89.5	93.7
June 97	99.7	87.0	95.8	89.7	94.1
July 97	100.4	91.4	95.8	92.1	95.6
Aug 97	107.1	95.0	100.8	97.9	100.8
Sep 97	114.2	94.9	106.4	98.8	104.7
Oct 97	113.8	94.9	102.1	97.1	102.6
Nov 97	113.9	92.0	104.0	95.1	102.3
Dec 97	110.7	95.9	102.4	97.4	102.3
Jan 98	110.0	101.3	106.7	100.7	105.7
Feb 98	125.1	122.3	115.5	121.2	120.5
Avg 1997-1998	107.1	94.0	100.1	96.2	100.0
	Nonfood				
March 97	79.2	107.9	93.5	85.0	91.8
April 97	80.1	109.3	93.0	87.1	92.5
May 97	81.0	116.8	91.9	89.5	94.2
June 97	82.1	116.8	91.8	90.5	94.6
July 97	82.2	122.8	91.5	91.8	96.0
Aug 97	82.4	127.7	91.5	94.3	97.5
Sep 97	83.4	127.6	95.7	98.3	100.1
Oct 97	83.7	128.0	95.7	98.7	100.4
Nov 97	84.9	128.4	99.9	102.2	103.1
Dec 97	85.9	131.7	103.2	103.4	105.5
Jan 98	94.6	134.0	103.7	107.1	108.6
Feb 98	106.4	134.8	109.3	118.9	115.8
Avg 1997-1998	85.5	123.8	96.7	97.2	100.0

Annex Table 9. **Consumer price indices for food and nonfood: Vientiane Municipality
(December 1999=100)**

Month	1992-1993		1997-1998		Annual Inflation Rate	
	Food	Nonfood	Food	Nonfood	Food	Nonfood
Mar	12.0	8.2	21.1	14.7	11.9	12.4
Apr	12.3	8.2	21.8	14.8	12.1	12.5
May	12.9	8.4	22.9	15.2	12.2	12.6
June	12.8	8.5	23.0	15.3	12.5	12.5
July	13.6	9.2	24.2	15.3	12.3	10.8
Aug	13.7	9.4	26.4	15.3	14.1	10.3
Sep	13.6	9.4	28.4	15.6	15.8	10.6
Oct	13.3	9.4	27.4	16.1	15.5	11.4
Nov	12.6	9.3	25.9	16.5	15.5	12.1
Dec	11.6	9.6	24.8	17.3	16.4	12.6
Jan	11.5	10.0	24.7	19.4	16.4	14.2
Feb	11.6	10.0	28.5	22.4	19.7	17.6
Average	12.6	9.1	24.9	16.5	14.6	12.6

In calculating the spatial price indices for 1992-1993, we imposed the inflation rates in Annex Table 9 on the spatial price indices constructed for 1997-1998 given in Annex Table 8. Spatial price indices for

1992-1993 are given in Annex Table 10 with base Lao urban 1997-1998=100. The spatial price indices in Annex Tables 8 and 10 are comparable.

Annex Table 10. **Spatial Price Indices for 1992-1993: Lao PDR Urban 1997-1998=100**

	Vientiane	North	Central	South	Lao
		Food			
March 97	54.1	47.3	50.2	48.9	50.4
April 97	54.5	47.4	49.7	50.1	50.6
May 97	55.8	48.5	53.5	50.2	52.6
June 97	55.3	48.3	53.2	49.8	52.2
July 97	56.3	51.2	53.7	51.6	53.6
Aug 97	55.4	49.2	52.2	50.7	52.2
Sep 97	54.8	45.6	51.0	47.4	50.2
Oct 97	55.4	46.2	49.7	47.3	49.9
Nov 97	55.5	44.8	50.7	46.3	49.9
Dec 97	51.9	45.0	48.0	45.7	48.0
Jan 98	51.5	47.4	49.9	47.1	49.4
Feb 98	50.9	49.7	46.9	49.3	49.0
Ave 1997-1998	54.3	47.6	50.7	48.7	50.7
		Nonfood			
March 97	44.1	60.1	52.1	47.4	51.2
April 97	44.5	60.7	51.7	48.4	51.4
May 97	44.7	64.5	50.8	49.5	52.1
June 97	45.6	65.0	51.1	50.3	52.6
July 97	49.2	73.4	54.7	54.9	57.4
Aug 97	50.5	78.3	56.1	57.9	59.8
Sep 97	50.3	77.0	57.7	59.3	60.4
Oct 97	48.8	74.6	55.8	57.6	58.5
Nov 97	48.0	72.6	56.5	57.7	58.2
Dec 97	47.5	72.8	57.0	57.2	58.3
Jan 98	48.6	68.8	53.3	55.0	55.8
Feb 98	47.4	60.1	48.7	53.0	51.6
Ave 1997-1998	47.3	68.5	53.5	53.8	55.3