

**CENTRAL BANK OF LESOTHO**

**DISTRIBUTION OF INCOMES AND CONSUMPTION  
IN LESOTHO**

**A STUDY BASED ON THE 1986/87 HOUSEHOLD BUDGET SURVEY DATA**

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**MASERU**

**KINGDOM OF LESOTHO**

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## 1. **Introduction**

### 1.1 **Background**

Studies on consumer demand were among the first to attract interest of researchers since applied econometrics gained its ubiquitous popularity. Besides their then relatively easy estimation methodology and cheap computation, these studies were mainly undertaken for their usefulness in policy formulation by governments. With the global objective of fostering economic growth and development, the authorities were and still are interested in knowing the effects of changes in taxes, subsidies, interest rates, prices etc, on aggregate demand. On the basis of such information, they make decisions intended to maximize the social welfare of the people.

Since its independence in 1966, there has never been any comprehensive quantitative study on consuming patterns in Lesotho. It is hence disquieting that all our national budget and development plans have been prepared without any empirical knowledge of Basotho consumption patterns and behaviour, but on a priori theorizing.

The objective of this exercise is not just to fill this lacuna but to provide the relevant authorities charged with the responsibility of planning and finance, with empirical information on consumption patterns in Lesotho. At the present moment the Lesotho Government is going through trying times of structural adjustment. Stringent measures which impinge upon all consumers have been introduced. It is both logical and necessary for the authorities to have an idea about the general consumption patterns when making decisions which have a direct bearing on the people's welfare.

Besides government, this study can also be useful to Basotho and foreign entrepreneurs with the intention to invest or those already running businesses in Lesotho. Although the focal point of the study is the derivation of estimates of income elasticity of demand for various commodities, a number of related topics have been included. These are income distribution, analysis of expenditure patterns and the effects of labour income from abroad on consumption. Many a time government policies have distributive effects. It is therefore imperative on the authorities to have the knowledge of income evaluated. The structural adjustment the government has undertaken has a direct impact on income

distribution. Such an impact needs to be examined in terms of both its magnitude and socio-economic effects.

The data used in this study are taken from the Lesotho National Household Budget Survey 1986/87 (HBS) carried out by the Bureau of Statistics. Whereas the HBS took stock of economic transactions by domestic households of Lesotho during the period October 1986 – September 1987 and economic relationships which may be directly useful for analysing current as well as medium-term decisions.

The findings, interpretation and conclusions in this report are those of the authors, and do not necessarily represent the official policy of the Central Bank of Lesotho, or the Bureau of Statistics.

## **1.2. Organization of the study**

In Chapter 2 we look at income distribution among households in Lesotho. Both the country as a whole and regional breakdowns are given in order to facilitate regional comparison in income distribution as well as in consuming patterns. The domains, or regions, in which the country has been split are Maseru Urban, other urban and All rural. For all Lesotho as well as for each domain the total household population has been broken down into quartiles based on cash income, and the respective total income in each of these four groups has been calculated.

Chapter 3 deals with distribution of expenditure by type of commodity by income groups. The purpose behind this is to show the proportion of total consumption (in value terms) for different commodities across the four quartiles defined in Chapter 2. We further look at the expenditure patterns within the three domains mentioned above. This is done by examining budget shares of Engel ratios of commodity groups within each income group.

After performing regression analysis based on the linear and non-linear models for the estimation of Engel curves, an examination of the derived elasticities is performed in Chapter 4. The purpose here is to make a distinction between those commodities which are regarded as basic necessities and those which are luxuries.

In Chapter 5 the significance of labour incomes from abroad is investigated. Labour income, especially miners' remittances from the South African mines, plays a significant role as a source of purchasing power for an average Mosotho household. Its inclusion is a requirement

for any proper assessment of Basotho consumption patterns. It should also be understood that household income is defined as cash income only.

The study ends with a summary and some comments to the results.

### 1.3. Basic Data and Socio-Economic Description of Lesotho

Lesotho is a small independent country in Southern Africa. The surface area amounts to 30,000 km<sup>2</sup> and its population is about 1.7 million. The population growth rate is estimated to be 2.6 percent and life expectancy at birth is 51 years. It is entirely surrounded by the Republic of South Africa. The mines of South Africa have traditionally been the dominant source of employment for the male Basotho population. The dominant domestic activity is subsistence agriculture. About 10 percent of the domestic labour force is employed in the local industry.

The data used for the study has been sourced from the micro database of the 1986/87 National Household Budget Survey (HBS). This survey was carried out by the Bureau of Statistics during the period October 1986 to September 1987. A countrywide representative sample of 7680 household participated in the survey. Each household participated for one month, which also conformed with the reference period for most variables. The design, actual data collection, processing and overall quality of the survey, as well as quality of various, variables is presented in the methodological report of the said survey (Bureau of Statistic, 1988c). The quality of data has been found to be good, generally speaking. On the whole, expenditure is accurately measured than is cash income.

A summary description of the socio-economic features of Lesotho is given in table 1 below from the main report of the said survey (Bureau of Statistic, 1988b). The information is reported on three different geographic domains being; Urban Maseru (i.e. the metropolitan area of the capital of Lesotho). All Other Urban Areas (i.e. the 9 district towns, the university town of Roma, Morija and Maputsoe), and Rural areas comprising all remaining parts of the country).

**Table 1: Basic results from the 1986/87 Household Budget Survey**

<u>Variable</u>	<u>Urban Maseru</u>	<u>Urban Other</u>	<u>Rural areas</u>	<u>All Lesotho</u>
Population	113,400	104,300	1,500,000	1,718,100

Households	26,400	20,500	283,800	330,700
Percent of Households	8	6	86	100
Average Household size (de jure)	4.36	4.48	5.28	5.18
Average no. of present members	3.77	4.09	4.47	4.39
Average Cash Income per household M/month	436	395	219	248
Average total Income per household M/month	410	361	211	236
Average Domestic cash expenditure per household M/month	326	252	170	188

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Definitions of the above concepts are given in Appendix 1.

Some key indicators for Lesotho are given in Table 2 below.

**Table 2:** Lesotho key Indicators (in current 1987 prices)

<u>Indicators</u>	<u>1987</u>	<u>Average 1980 - 1988</u>
GDP (M mill)	725.8	
Growth rate (%)	17.2	16.6
GDP per capital (M)	448.0	
GNI (M mill)	1341.2	
Growth rate (%)	11.5	16.5
GNI per capita (M)	827.9	
Imports CIF (M) mill)	936.7	
Per capita (M)	578.2	
Exports (M mill)	94.7	
Per capita (M)	58.5	
Labour Incomes Abroad (Remittances) (M mill)	628.0	

Labour incomes per capita	387.7	
Inflation rate (%)	11.7	14.0

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Current 1 US Dollar = 2.04 Maloti (average in 1987)

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Source: National Accounts of Lesotho 1980 – 1988, Bureau of Statistics, 1989.  
IFS 1988

## **2. Income Distribution in Lesotho**

In this chapter we examine income distribution in the country as a whole as well as within the three domains of the country. Income is recorded as monthly total cash income expressed in current Maloti cash income has been chosen because our interest is focused on tradeable consumption. Cash income amounts to about 90 percent of the total income. The difference (income in kind) is composed of consumption of own production, salaries or wages paid in kind, imputed value of owner occupied dwellings and gifts. The difference between total and cash income was rather stable between income groups. However, the measurement of income offered some difficulties. As a result, in cases of partial non-response for cash income it had to be imputed with cash expenditure. For a detailed description of data quality see Bureau of Statistics 1988c.

In its Fourth Five Year Development Plan, the Government of Lesotho has pronounced that together with its main objectives of economic growth and employment generation there has to be a contemporaneous equitable distribution of income. It is the purpose of this section to put this latter issue in perspective thus allowing a good understanding of the problem its implications and the need for urgent corrective action if need be in order that economic growth can take place together with development in a broader sense. The results are reported in terms of quartiles for all Lesotho, and for each geographic domain.



## 2.1. Income distribution in Lesotho as a whole

**Table 3: Distribution of Cash Income by Quartiles in all Lesotho**

Income group Maloti/month	Percent Income	Percent Population	Accumulated Population	Accumulated Income
1. 0 - 40	1.5	25	25	1.5
2. 41-112	9.2	25	50	10.7
3. 113-263	28.2	25	75	38.9
4. 264 and over	61.1	25	100	100.0

Estimated total annual cash income in the domain: M937 Million.  
Arithmetic mean: M236 per household per month. Percent of households below mean income: 72.0

According to Table 3, the lowest 25.0 percent of households survive on a mere 1.5 percent of the country's total cash income. This represents an extremely uneven distribution of income. On looking at the lowest 75.0 percent of households it is found that they receive 38.9 percent of all cash income whereas the top 25.0 percent households receive the lion's share of 61.1 percent. The average monthly income is M236, but what is disturbing is that 72 percent of the households fall below this amount. This shows that the country's estimated household sector cash income of M937 million in 1986/87 is concentrated to the privilege few. Within the present situation of increasing unemployment and prices, a subjective conclusion could be that the marginal utility of money is ever increasing in the lower income groups. This means that, even though there has been a real increase in output in the past three years (1985 - 1988), the majority of the population could still be surviving on a marginal share of the national wealth.

For the purpose of illustrating the degree of inequality and to facilitate comparison with other countries, a Lorenz-curve has been drawn, as shown in Figure 1.

**Figure 1: Lorenz curve for All Lesotho**

It is distinctly obvious from the above Lorenz-curve that income distribution is highly skewed. The degree of skewedness is measured by the proximity of the Lorenz-curve to the 45 degree line. If distribution is even, the Lorenz-curve approaches the line. Conversely, if inequality is high, the Lorenz-curve will be further away from the 45 degree line and in the limiting case under perfect inequality it will collapse to the right-hand corner of the triangle. It is without question therefore, on looking at the diagram, that income inequality is quite high in Lesotho as already indicated. Besides the Lorenz-curve, a quantitative inequality indicator, viz., Gini-coefficient, has also been computed. The calculation method for the Gini coefficient is given in Appendix 2. It is estimated to be 0.62. the closer to zero this coefficient is, the more equal the distribution and the inverse holds if it is close to unity. Obviously then, the high value of the coefficient indicates a significant inequality.

The first comprehensive study of income distribution in Lesotho was done by L. Africa using the 1967/69 rural household budget survey and the 1972/73 urban household budget survey. Although he did not calculate a Gini coefficient for all Lesotho he calculated those for rural and urban sectors as 0.28 and 0.46, respectively. Any comparison between these earlier estimates and ours has to be done with caution. The earlier two surveys have been found to suffer from a number of technical limitations.

In the following analysis we examine the income distribution within each of the three different geographical areas; i.e. Maseru Urban area, other urban areas, and All rural areas. For the definitions of the three domains see Appendix 1.

## 2.2 Income Distribution in Rural areas

Table 4: Distribution of cash Income in Rural Areas by Quartiles

Income group Maloti/month	Percent Income	Percent Population	Accumulated Population	Accumulated Income
1. 0 – 32	1.4	25	25	1.4
2. 33 -100	7.5	25	50	8.9
3. 101-240	18.8	25	75	27.7

4.	241 and over	72.3	25	100	100.0
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Estimated total annual cash income in the area: M730 million.  
 Arithmetic mean: M211 per household per month. Percent of households below mean income 72.6 Gini coefficient 0.69.

Table 4 shows that the bottom 25.0 percent of households in the rural areas have only about 1.4 percent of the total income. This compares with 3.8 percent in the Maseru Urban and 2.7 percent in other Urban areas, as shown in the subsequent two tables. The bottom 75.0 percent have only about 27.7 percent compared with 72.3 percent enjoyed by the top 25.0 percent of households. The above picture highlights a gross inequitable distribution of national income which undoubtedly calls for appropriate policies from government in order to redress the situation. The Gini coefficient of 0.69 is very high by any comparison. Among the reasons for this grave situation could be mentioned the tight rationing of migrant workers in the labour market since the late 1970s and a fairly high increase in wages for those who are employed. Equally important is that a number of households do not receive cash income on a regular basis. It is important to note that the high income inequality relates only to cash income. It excludes non-cash income which as it has been alluded to above, accounts for about 10 percent of the total household income. Also worth noting is that the corresponding income group brackets among the respective domains are not equal hence may not be comparable.

### **2.3                    Income Distribution in Maseru Urban area**

Income group Maloti/month	Percent Income	percent Population	Accumulated Population	Accumulated Income
1.     0 – 122	3.8	25	25	3.8
2.     123 – 250	10.7	25	50	14.5
3.     251 – 500	21.0	25	75	35.5
4.     501 and over	64.5	25	100	100.0

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Estimated total annual cash income in the area: M133 million.  
 Arithmetic mean: M410 per households per month. Percent of households below mean income: 69.5. Gini coefficient 0.51.

From the 1920 sampled households in the Maseru urban area the information was obtained, it has been found that the lowest 25.0 percent

of the area's population receive only 3.8 percent of the area's total cash income. The bottom 75.0 percent receive 35.5 percent whereas to top 25.0 percent have 64 percent of the total income. This, as shown in Table 5, represents a highly skewed distribution of income indeed, although somewhat better than in the rural areas. It is not pleasing to find that 69.5 percent of the Maseru Urban area's population survive on an income below the average monthly cash income of M410. The Gini coefficient of 0.51 is still relatively high, although lower than that for the rural areas.

## **2.4 Income Distribution in Other Urban areas**

**Table 6: Distribution of Cash income in Other Urban areas in Quartiles**

Income group Maloti/month	Percent Income	Percent Population	Accumulated Population	Income
1. 0 – 77	2.7	25	25	2.7
2. 78 – 155	9.9	25	50	12.6
3. 156–350	20.9	25	75	33.5
4. 351 and over	66.5	25	100	100.0

Estimated total annual cash income in the area: M74 million. Arithmetic mean M302 per household per month. Percent of households below mean income 69.9 Gini coefficient 0.53. One observation was deleted from this sub-sample as an outlier. This explains the difference in average income as compared with Bureau of statistics, 1988a.

As shown in Table 6, the lowest 25.0 percent of households in this domain receive only 2.7 percent of the area's total income. It can also be seen that the bottom 75.0 percent of households receive 33.5 percent compared to 66.5 percent received by the top 25.0 percent of households. The average monthly income of M302 is received by about 30.0 percent of the households and about 70.0 percent of the households fall below it. The indicator of income inequality estimated at 0.53 is also high like those in the above two domains.

What can be deduced from Table 4 to 6 is that among all the three domains income distribution is worse in the rural areas. The reason could be, as it has been mentioned above, that in the rural areas cash income is not earned on a regular basis by all households. Cash income in this area comes in the form of miners' remittances, transfers by household members working in the urban areas also from the sale of agricultural

products. These income sources are not enjoyed by most households and there is also a high variation among them.

No specific reference to poverty has been given in the above presentation. In the Bureau of Statistics (1988a) a specific poverty measure has been introduced. This takes into account estimated minimum requirements for survival and access to income generating sources.

### 3. Consumption Patterns in Lesotho

#### 3.1 Consumption shares by Income Group

##### 3.1.1 Rural Areas

In this section we examine consumption patterns based on 20 different commodity categories. The choice of specific commodities is based on a pre-calculation of important expenditure categories, see Bureau of Statistics (1988b). The same grouping of commodities is used throughout the rest of this paper. The income groups refer to the results in Chapter 2 above.

**Table 7: Consumption Shares in Rural areas**

Commodity	Income group				Total
	1 (- 32)	2 (33-100)	3 101-240	4 241-)	
Maize-meal	7.4	22.9	32.4	37.3	100.0
Meat	7.9	13.4	27.0	51.7	100.0
Flour	6.4	14.4	28.0	51.1	100.0
Vegetables	10.6	15.4	27.6	46.4	100.0
Dairy	8.7	15.0	27.5	48.8	100.0
Sugar	10.8	19.2	27.7	42.3	100.0
Non-alcoholic beverages	9.7	8.1	19.3	52.8	100.0
Alcoholic beverages	6.1	20.5	22.5	50.8	100.0
Cigarettes & tobacco	14.1	23.6	25.4	36.8	100.0
Footwear	4.5	9.8	27.8	57.9	100.0
Blankets	4.3	6.0	24.1	65.5	100.0
Paraffin	9.0	16.7	27.9	46.4	100.0
Building material	2.5	2.2	14.4	81.0	100.0
Public Transport	8.2	12.8	26.6	52.3	100.0
Soap & detergent	11.1	20.6	27.7	40.7	100.0

Medical care	5.1	15.6	22.1	57.3	100.0
Other food items	7.4	15.8	25.6	51.3	100.0
Other clothing	4.2	10.1	23.4	62.4	100.0
Other household goods	3.7	4.7	13.9	77.7	100.0
All other Expenditure	6.1	9.5	17.3	67.1	100.0
<hr/>					
Total Expenditure	5.8	12.1	23.3	58.7	100.0
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According to the above table, it can be observed that the total expenditure share of the bottom 25.0 percent of rural households amounts to 5.8 percent. This share is lower than the cash income share of 1.4 percent (Table 4). The excess of expenditure share over the income share indicates dissaving. It is also interesting to note that dissaving is not only confined to the bottom 25.0 percent households but covers the entire bottom 75.0 percent households. Their total expenditure share of 41.2 percent compares with the total cash income share of 27.7 percent. It is only the top 25.0 percent households that can afford to save with their expenditure and income shares of 58.7 percent and 72.3 percent respectively.

Among the individual items it can be observed that households in the lowest quartile, consume 7.4 percent of total maize-meal consumption (in value terms) and the bottom 75.0 percent consume about 63.0 percent. At the top end of the income distribution, maize meal consumption is not very skewed although the share of the bottom 25.0 percent households is rather low. The only other commodity whose distribution improves significantly is cigarettes and tobacco. The reason behind this could be that their consumption is mainly influenced by habit more than income. A commodity with a glaring skewed distribution is building material and the reason is obvious. Their purchases depend mostly on income and as it has been seen, incomes in the rural areas are quite low and inequitably distributed. On the whole, consumption distribution for the rest of the commodities is also significantly skewed. Also notable from the above table is that at the lowest income level the most important commodities are maize-meal, meat, vegetables, sugar, non-alcoholic drinks, cigarettes, paraffin and soap.

### 3.1.2 Maseru Urban area

Consumption patterns by income groups in the Maseru Urban area are shown in Table 8 below.

**Table 8 Consumption Shares in Maseru Urban area**

Commodity group	Income group				Total
	1 (-122)	2 (123-250)	3 (251-500)	4 (501-)	
Maize meal	18.5	30.2	28.3	22.9	100.0
Meat	10.1	21.9	22.2	45.7	100.0
Wheat Flour	11.7	23.2	30.0	35.1	100.0
Vegetables	4.2	23.7	25.0	37.1	100.0
Dairy	11.2	16.2	25.4	47.2	100.0
Sugar	18.2	24.9	26.7	30.2	100.0
Non-alcoholic beverages	7.6	16.6	22.2	51.0	100.0
Alcoholic beverages	7.3	16.6	22.7	53.4	100.0
Cigarettes & tobacco	9.0	23.7	32.3	34.7	100.0
Footwear	5.9	20.0	23.7	50.4	100.0
Blankets	9.1	28.1	12.9	49.9	100.0
Paraffin	18.4	31.6	30.4	19.6	100.0
Building material	1.5	7.2	22.6	68.6	100.0
Public Transport	9.7	24.3	33.8	32.2	100.0
Soap & detergent	13.2	25.7	25.4	35.8	100.0
Medical care	5.3	12.4	24.8	57.5	100.0
Other food items	8.2	16.8	23.6	51.4	100.0
Other clothing	4.1	18.3	23.6	54.0	100.0
Other household goods	3.0	4.9	16.3	75.8	100.0
All Other Expenditure	4.7	8.3	13.2	73.8	100.0
<b>Total Expenditure</b>	<b>7.2</b>	<b>15.8</b>	<b>21.6</b>	<b>55.4</b>	<b>100.0</b>



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The bottom 25.0 percent of Maseru Urban area households consume 18.5 percent of total maize-meal consumption in the area and the bottom 75.0 percent consume 77.0 percent. The top 25.0 percent households consume only 23.0 percent. Apart from income group 2 maize-meal consumption tends to fall at higher income brackets and this makes sense because substitution to other better commodities increases with income. This will become clearer as we deal with income elasticities in Chapter 4 below. It is also important to note that as in the rural areas, distribution of maize-meal consumption is not as skewed as income distribution. Other commodities which show a similar pattern are paraffin, public transport, sugar, vegetables, soap and wheat flour. It could be argued that this is so because these are mostly essential commodities which households cannot do without despite the level of income. Of all the commodities, paraffin stands as the most important for the bottom 75.0 percent households. They consume 80.4 percent of its total consumption in the area. It compares with 31.3 percent expenditure on building material which indicates that construction of residential homes and major improvements on houses are mainly enjoyed by the well-to-do.

### 3.1.3. Other Urban areas

Table 9: Consumption Shares in Other Urban areas

Commodity group	Income group				Total
	1 (-77)	2 (78-155)	3 (156-350)	4 (351-)	
Maize-meal	16.0	28.5	26.6	28.9	100.0
Meat	11.3	15.3	27.7	45.6	100.0
Wheat flour	8.8	22.2	34.8	34.1	100.0
Vegetables	12.1	21.3	29.5	37.1	100.0
Dairy	9.1	20.9	35.1	34.9	100.0
Sugar	11.4	23.2	30.3	35.1	100.0
Non-alcoholic beverages	6.0	12.6	30.7	50.6	100.0
Alcoholic beverages	10.6	7.6	40.4	41.4	100.0
Cigarettes & tobacco	14.3	17.6	28.6	39.5	100.0
Footwear	6.6	15.6	37.7	40.1	100.0
Blankets	3.1	19.1	39.0	38.8	100.0
Paraffin	14.6	23.5	29.6	32.3	100.0
Building material	1.8	6.9	3.8	87.6	100.0
Public Transport	9.0	18.7	31.9	40.4	100.0
Soap & detergent	13.3	19.9	30.9	35.8	100.0
Medical care	5.1	25.4	20.7	49.3	100.0
Other food items	8.5	16.8	30.7	44.0	100.0
Other clothing	3.1	12.3	39.1	45.6	100.0
Other household goods	1.1	6.1	10.1	82.8	100.0
All other Expenditure	2.8	9.3	23.0	64.9	100.0
<b>Total Expenditure</b>	<b>5.5</b>	<b>14.0</b>	<b>26.5</b>	<b>54.0</b>	<b>100.0</b>

In Other Urban areas, consumption pattern is somewhat similar to that in Maseru Urban. Maize-meal still constitutes the most important food item among the bottom 75.0 percent households. They consume 71.1 percent of its total consumption. Other commodities whose consumption shares are also high and have a better distribution are cigarettes and tobacco and paraffin. They are followed by soap, sugar, meat, vegetables and alcoholic beverages.

Among the worst distributed commodities can be mentioned building materials and other household goods and all other expenditure. These two groups include things like furniture, electronic equipment, etc.

For all the three domains, it can be concluded that the consumption patterns shown vindicate the common hypothesis that when income decreases households try to maintain the consumption level of the most essential commodities.

This conclusion is based on the observation that the consumption distribution of commodities like maize-meal, vegetable, sugar, cigarettes and tobacco, paraffin and soap seem to be less skewed than the rest. The reason as mentioned, could be that these are commodities which households find incomprehensible despite the income level. It is surprising that expenditure on medical care which is quite low for the bottom 25.0 percent of the households rises and then falls in the third income group. The same applies for maize-meal and building material. The bottom-line, as represented by total expenditure, reflects a significantly uneven distribution of consumption across the different income groups.

### 3.2 Expenditure Patterns by Engel ratios

Engel ratios are budget shares which according to economic theory, are expected to decline as income rises, especially on foodstuffs and other necessities.

Table 10: Engel Ratios Rural areas

Commodity group	Income group				Total
	1 (-32)	2 (33-100)	3 (101-240)	4 (241 -)	
Maize-meal	11.6	18.4	13.7	6.3	9.8
Meat	3.5	3.1	3.3	2.5	2.8
Flour	5.2	6.0	6.2	4.5	5.1
Vegetables	3.2	2.5	2.4	1.6	2.0
Dairy	1.6	1.4	1.4	1.0	1.2
Sugar	5.1	4.7	3.6	2.2	3.0
Non-alcoholic beverages	1.2	0.3	0.3	0.3	0.4
Alcoholic beverages	2.3	3.9	2.2	2.0	2.3
Cigarettes & tobacco	2.8	2.4	1.4	0.8	1.2
Footwear	3.5	4.5	5.9	4.9	5.0
Blankets	3.4	2.5	5.2	5.7	5.0
Paraffin	4.2	4.0	3.5	2.3	2.9
Building material	2.5	1.1	3.8	8.6	6.2
Public Transport	3.7	3.0	3.3	2.6	2.9
Soap & detergent	5.0	4.8	3.4	2.0	2.8
Medical care	1.6	2.5	1.9	1.9	2.0
Other food items	13.8	15.2	13.0	10.4	11.8
Other clothing	6.2	7.7	9.5	10.1	9.4
Other households goods	6.0	3.9	6.2	13.7	10.3
All other Expenditure	13.3	8.6	9.8	16.6	13.8
<b>Total Expenditure</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

From the above table it is clear that maize-meal takes quite a significant share of an average rural household budget (9.8 percent). Contrary to the increasing shares as shown in Table 7 the shares increase up to income group 2 and then decline. The next important commodity is wheat flour. Its budget share increases with income although it seems to decline at the highest income group. Next in line are sugar and soap whose shares are high but fall as income rises as well. Although alcoholic beverages have a larger budget share than non-alcoholic beverages, perhaps due to price effect than quality, it is gratifying to realize that its share decreases as we go up the income scale.

What can be deduced from the above table is that food commodities take the largest share of a typical rural household budget. The share of total income spent on it is 38.4 percent. Clothing as shown by footwear, blankets and all other clothing, also takes a sizeable share of the budget but contrary to food items, its share increases with the rise in income. Another item whose share is small but rises strongly with the rise in income is building material. Other households goods, which include things like furniture, show a tendency to grow with income although income group 2 seems to be an exception. The same holds for all other household expenditure, with the exception of income group 2 and 3.

**Table 11: Engel Ratios for Maseru Urban area**

Commodity group	Income group				Total
	1 (- 122)	2 (123-250)	3 (251-500)	4 (501)	
Maize-meal	9.6	7.3	5.1	1.6	3.8
Meat	9.5	9.6	7.2	5.7	6.9
Flour	5.2	4.8	4.6	2.1	3.3
Vegetables	3.9	3.0	2.4	1.4	2.0
Dairy products	2.9	1.9	2.3	1.6	1.9
Sugar	3.1	2.0	1.5	0.7	1.2
Non-alcoholic beverages	0.9	1.0	0.9	0.8	0.9
Alcoholic beverages	3.4	3.6	3.7	3.3	3.5
Cigarettes & tobacco	1.5	1.7	1.8	0.7	1.2
Footwear	3.7	5.9	5.2	4.3	4.7

Blankets	1.6	2.3	0.8	1.2	1.3
Paraffin	6.6	5.2	3.7	0.9	2.6
Building material	0.8	1.8	4.1	4.9	3.9
Public transport	4.0	4.7	4.8	1.8	3.1
Soap & detergent	2.7	2.5	1.8	1.0	1.5
Medical care	1.2	1.3	1.9	1.7	1.6
Other food items	16.0	15.3	15.9	13.4	14.4
Other clothing	5.6	11.5	11.0	9.7	10.0
Other household good	4.5	3.4	8.4	15.2	11.1
All other Expenditure	13.4	11.1	12.9	28.0	21.0
<hr/>					
Total Expenditure	100	100.0	100.0	100.0	100.0
<hr/>					

Within the individual food items in the Maseru Urban area, meat takes the largest share of the average household budget. However, it is surprising to find that the shares rise up to income group 2 and then decline afterwards.

Our expectation was that its share would increase as we go up the income scales. Other important items are maize meal, flour, alcoholic beverages, footwear, building material and travel. It is also important to note that most Engel ratios for food items decline as income rises.

Another notable point is that expenditure on alcoholic beverages seems to be rather insensitive to increase in income as compared to building material which rises sharply as income increases. It can also be observed from the above table that about 50.0 percent of the total expenditure of the bottom 75.0 percent of the households is on food alone. Thus it may be inferred that a good part of Maseru Urban people spend most of their income to meet basic necessities like food, clothing and other services in the same manner as the rural population. Also showing noticeable importance is the expenditure on public transport. This item as observed in the previous section is mostly utilized by the lowest 75.0 percent of the households. Paraffin also takes a significant but declining share as income increases.

**Table 12: Engel Rations for Other Urban areas**

Commodity group	Income group				Total
	1 (-77)	2 (78-155)	3 (156-350)	4 (351 -)	
Maize-meal	12.2	10.0	5.0	2.7	4.9
Meat	11.8	7.4	7.2	5.8	6.8
Flour	5.3	6.1	5.1	2.5	3.9
Vegetables	4.2	3.4	2.5	1.5	2.2
Dairy	2.6	2.7	2.4	1.2	1.8
Sugar	2.8	2.7	1.9	1.1	1.6
Non-alcoholic beverages	0.4	0.4	0.5	0.4	0.5
Alcoholic beverages	5.2	1.7	4.9	2.5	3.2
Cigarettes & tobacco	2.3	1.3	1.1	0.8	1.0
Footwear	3.9	4.3	5.6	2.9	3.9
Blankets material	1.1	2.0	0.6	6.9	4.2
Public Transport	2.4	2.3	2.1	1.3	1.7
Soap & detergent	3.8	2.6	2.2	1.3	1.9
Medical care	1.0	2.2	0.9	1.1	1.2
Other food items	18.1	16.5	16.3	11.5	13.9
Other clothing	4.4	8.0	13.8	7.9	9.2
Other household goods	2.6	6.7	6.0	24.3	15.6
All other Expenditure	7.3	11.2	14.9	20.8	17.0
Total Expenditure	100.0	100.0	100.0	100.0	100.0

The pattern of the Engel ratios in Other Urban areas is somewhat similar to that of Maseru urban. The budget share of meat and meat products at 6.8 percent is the highest among individual food items as in Maseru Urban. This means that for an average urban household's consumption basket, meat takes a significant share. The next commodity in size of share is maize meal which takes about 4.9 percent of total income. Other important commodities are wheat flour, alcoholic beverages, footwear, paraffin and building material. Food has been found to be the most important commodity group in this domain as in the preceding domains. It accounts for 38.8 percent of an average household consumption basket.

A summary of the budget shares for all Lesotho is given in Table 13, below.

**Table 13: Consumption Budget shares – All Lesotho**

<u>Commodity</u>	<u>Budget share</u>
Food	38.4
Clothing	16.9
Housing	4.8
Fuel and paraffin	3.0
Public Transport	2.6
Soap and detergent	2.1
Medical Care	1.6
All other items	30.6
	<hr/> 100.0



## 4. Income Elasticities

### 4.1 Commodity Elasticities

After studying income distribution, distribution expenditure and Engel ratios, an attempt is made in this section to analyse commodity income elasticities which have been derived from the estimated Engel curves. These elasticities or degree of responsiveness of demand as income increases/decreases will indicate whether a commodity can be classified as a luxurious, necessary or inferior good. A commodity is classified as luxurious, if its income elasticity is greater than one and a necessity is between unity and zero. It is inferior if its income elasticities given in the following tables are based on two different specifications – the linear and the non-linear model. It should be noted that those marked with an asterisk are estimated from the functional form showing the best fit. The estimated parameters of the functions together with the standards goodness-of-fit indicators are given in Appendix 3.

**Table 14: Commodity Elasticities at Mean Income**

Commodity	RURAL AREAS		MASERU URBAN		OTHER URBAN	
	Linear form	Non-linear Form	Linear form	Non-linear form	Linear form	Non-linear form
Maize	0.43*	0.577	0.07	0.30*	0.12	0.33*
Meat	0.08*	0.67	1.14	0.66*	0.42*	0.58
Dairy	0.36	0.61*	0.46*	0.62	0.28	0.52*
Vegetables	0.44*	0.57	0.85	0.53*	0.29	0.49*
Sugar	0.38*	0.51	0.12	0.37*	0.19	0.40*
Non-alcohol.	0.50*	0.68	0.51	0.83*	0.34	0.74*
Cigarettes & Tobacco	0.38*	0.45	0.56*	0.66	0.57*	0.71
Other food	0.57*	0.73	0.58*	0.85	0.76*	0.92
Footwear	0.59*	0.86	1.07*	1.02	0.36	0.68*
Blankets	3.55*	1.30	0.60*	0.90	0.76*	0.91
Other Clothing	0.68*	0.94	1.10*	1.04	0.77*	1.03

<sup>1</sup> The elasticity value marked with an asterisk(\*) show the best fit in terms of the unadjusted coefficient of multiple determination ( $R^2$ ). According to Appendix 3, it will be noted that the derived  $R^2$  are quite low. The reason could be that due to the simple specified model, there may be other more important variables which can explain the variation in consumption better. A more detailed study on the determinants of consumption in Lesotho would be very helpful.

Table 14 (Cont):

Paraffin	0.32	0.57*	0.08	0.32*	0.18	0.36*
Soap & Detergents	0.36*	0.50	0.22	0.47*	0.35*	0.49
Other household goods	2.53*	1.35	3.16*	1.65	1.55*	1.10
Medical care	0.46	0.78*	0.71*	0.95	0.41	0.81
Bus & Taxi Fares	0.54*	0.76	0.24	0.55*	0.34	0.66*
Building Materials	1.66*	1.33	0.70	1.06	1.22	1.24
Other Domestic consumption expend	0.87*	1.00	1.25*	1.19	2.03*	1.18

## **4.2 Analysis of Elasticities**

Per Capita consumption and expenditure were used as endogenous and exogenous variable respectively on both specifications. The use of per capita expenditure as an independent variable was made for two reasons. First, cash income had a problem of non-response during the survey. Secondly, cash income may be distorted by transitory variations whereas expenditure is likely to reflect permanent income more accurately. The conversion of figures to per capita consumption and expenditure implies that there are no economies or diseconomies of scale in the consumption of any commodity and that the influence of differences in household composition is very small or zero. All data used for regression are unweighted within the domains, the reason being that the sample weights

were rather equal within each domain although they differed significantly between domains.

According to Table 14, most of the commodities are necessities. Technically, this means that as income increases the real purchases of these commodities will increase by less than the initial increase in income. A fall in income will lead to a substitution away from luxurious commodities in order to maintain quantities of the necessary ones. A further fall in income may render some of the necessities luxurious. It is rather amazing to find that blankets also fall in this category of luxurious commodities, as they are a Basotho traditional apparel. The reason could be that of aggregation. There are those blankets needed for basic use and those bought for prestige and status. It may therefore be this dichotomy which has led to this distortion. The other luxury items are building material and other household goods. The latter as mentioned earlier, comprises a heterogenous group of commodities like furniture, electronic home appliances, and normally these commodities are highly sensitive to changes in income. On the whole it could be inferred from the above that the majority of Basotho to a reasonable extent meet their basic needs and an increase in income could release some funds for accumulation of capital and financial assets.

Overall, all food items fall in the necessities category. Most other commodity group also qualify as necessities, excepting footwear, other clothing, other household non-consumption goods and other domestic consumption goods.

## **5. Foreign Remittances and Domestic Consumption**

The Gross National Income of Lesotho in 1987 was estimated at M1341 million. Of this amount M626 million, or 47 percent was accounted for by foreign remittances, as seen from table 2 above. The dominant part of foreign remittances comes from migrant mineworkers in the gold mines of South Africa. Judging from the magnitude of these remittances there is no doubt that they could be having a significant effect on consumption patterns in Lesotho, both as a source of additional income and in terms of influencing the consumption pattern for given incomes. Receivers of migrant remittances are defined as households in which at least one of the members is a migrant worker.

## 5.1 Budget Shares for Receivers and Non-receivers (%)

Budget shares for receivers and non-receivers of migrant remittances are given in Table 1.5 below. The pattern for all the domains is rather mixed. Our expectation was that the share of most food commodities, especially in the rural areas, would be higher for non-receivers than for receivers of migrant remittance incomes.

Commodity	RURAL AREAS		MASERU URBAN		OTHER URBAN	
	Receivers	Non-receivers	Receivers	Non-receivers	Receiver	Non-receivers
Maize-meal	8.1	12.0	4.3	3.8	6.5	4.8
Wheat flour	5.1	4.9	3.8	3.1	6.0	3.2
Meat	2.6	2.9	5.9	6.8	6.3	7.2
Dairy	1.3	1.1	1.9	1.8	2.4	1.8
Vegetables	2.0	2.1	2.2	1.9	2.8	2.2
Sugar	2.7	3.3	1.8	1.2	2.3	1.5
Non-alcohol	0.5	0.3	0.6	0.8	0.4	0.5
Cigarettes & Tobacco	0.9	1.7	0.8	1.2	0.7	1.2
Other food	11.2	12.2	12.1	13.9	10.5	15.4
Footwear	5.1	4.4	3.9	4.5	5.1	3.5
Blankets	3.3	6.5	1.6	1.2	2.8	1.9
Other clothing	9.8	8.2	11.6	8.9	10.8	8.8
Paraffin	2.9	2.9	3.3	2.6	4.4	3.3
Soap & detergents	2.6	3.1	1.8	1.5	2.2	1.9
Other household goods	11.0	8.2	13.6	8.9	11.5	15.8
Medical care	2.0	1.9	1.8	9.2	0.9	1.3
Bus & Taxi Fares	3.0	2.6	3.3	2.9	3.1	3.1
Building Materials	8.4	8.0	8.3	2.6	4.6	3.7

Other domestic consumption expend	17.3	13.6	17.3	23.0	16.8	20.9
All expenditure	100	100	100	100	100	100
Average total capital per month	M59	M37	M103	M117	M72	M93
Percent of all Households	37.0	49.0	1.5	6.3	2.0	4.2

This is indeed true for most food commodities in the rural areas, although the difference is slight with the other domains. In the Maseru urban area, the budget shares for most food commodities are higher for receivers of remittances indicating that an average urban household with a migrant worker tends to consume more of these commodities. The increased share of food consumption for receivers could be explained by the fact that their incomes are low compared to those of urban non-receivers. The Engel's law effect is more pronounced in the latter category. The food commodities consumption pattern in the other areas is similar to that in Maseru. The budget shares of other household goods and building material are quite high across the three domains for receivers of remittances. Those for the heterogenous group, other domestic expenditure, are the highest. In the rural areas households receiving remittances spend more on other domestic expenditure, whereas in the urban areas it is non-receivers of remittances.

## 5.2 Income Elasticities for Receivers and Non-receivers

Income elasticities for receivers and non-receivers of remittances, derived from the parameter estimates of the linear and non-linear models are presented in Table 16 below. Only those derived from equations with the best fit are shown. According to this table all the food items are necessities. Our expectation was that since in the rural areas incomes are low, the tendency would be for income elasticity to exceed unity for some food items in the non-receiver's group. However, our results support the opposite. Technically, this means that incomes in the non-receivers group are high enough to meet basic necessities like food.

Table 16: Income Elasticities for Receivers and Non-receivers

Commodity	RURAL AREAS		MASERU URBAN		OTHER URBAN	
	Receivers	Non Receivers	Receivers	Non receivers	Receivers	Non receivers
Maize-meal	0.46	0.44	0.32	0.30	0.45	0.29
Wheat flour	0.56	0.75	0.41	0.29	0.69	0.36
Meat	0.53	0.47	0.63	0.66	0.48	0.39
Dairy	0.51	0.63	0.47	0.48	0.51	0.49
Vegetables	0.50	0.76	0.54	0.53	0.56	0.47
Sugar	0.40	0.36	0.47	0.34	0.63	0.35
Non-alcohol	0.79	0.78	0.60	0.85	0.81	0.68
Cigarettes & tobacco	0.55	0.29	0.45	0.55	0.57	0.53
Other food	0.68	0.49	0.59	0.64	0.74	0.74
Footwear	1.04	0.87	0.53	1.10	0.67	0.66
Blankets	0.97	3.88	1.05	0.54	0.47	0.88
Other clothing	1.10	0.96	0.86	1.19	0.75	0.81
Paraffin	0.43	0.63	0.38	0.30	0.36	0.36
Soap & detergents	0.40	0.31	0.47	0.47	0.69	0.31
Other household goods	1.53	3.50	3.43	3.20	2.77	1.37
Medical care	0.79	0.77	0.87	0.70	0.64	0.80
Bus & Taxi Fares	0.72	0.42	0.50	0.56	1.04	0.57
Building material	1.86	2.10	1.02	0.86	3.54	0.94
Other domestic consumption expend	2.34	0.59	1.29	1.22	0.90	2.07

Percent all						
Households	37.0	49.0	1.5	6.3	2.0	4.2

One noteworthy point is that clothes, as exemplified by footwear and other clothing, are luxurious commodities for receivers of remittances in the rural areas, as compared to non-receivers. This could be explained by the fact that migrant workers' tastes and preferences as well as those of their families are affected by exposure to urbanisation and hence to fashion. In the Maseru urban area the opposite holds. Footwear and other clothing turn out to be luxurious items for non-receivers of remittances. This could be explained in terms of the fashion-loving urbanites whose average per capita total expenditure is quite high compared to remittance earners (see Table 15). The income elasticity for blankets show some mixed results. For the rural non-receivers it is much higher than unity. This could mean that, as most non-receivers have little or no exposure to urban tastes and preferences, they have a tendency of buying more blankets as their income increase. Paraffin, soap and detergent, medical care and public transport are all necessities. Building materials, other household goods and other domestic expenditure all qualify as luxuries across the three domains.

### 5.3 Effects of Remittances on Consumption Patterns

Subsequent to estimating the Engel curves using both the semi-log and linear model, a dummy variable was included in the latter model, in order to test for the significance of remittance income on consumption. The results are presented in Appendix 3.

The interesting observation from the results is that it is only in the rural areas where the parameter estimate for the remittance dummy was found to be significant for most commodity group. This is an indication that apart from the effect of income differences between the groups concerned, remittance income significantly affect consumption pattern of the rural population.

In both Maseru Urban area and other urban areas the dummy parameter estimate was in most cases insignificant. This led us to the conclusion that with the information we had we could not confirm that remittance income has any effect on the consumptions patterns of both regions. However, it was observed that for most food items the dummy parameter estimate was significant but with a negative sign. This pattern is more pronounced in the Maseru urban area than in the other urban areas. A negative but significant dummy parameter estimate for any commodity

was interpreted as an indication that remittance income leads to a decrease in the consumption of such commodity. With the exception of other urban areas, it was also observed that remittance income leads to increased expenditure on building material.

## 6. Summary and comments

In this study we analysed income distribution in Lesotho as a whole as well as in the three main domains viz. Rural areas, Maseru urban area and other urban areas. We also considered the distribution of expenditure by type of commodity by income groups, estimated Engle ratios and derived income elasticities. Lastly, we investigated the effects of remittance income on consumption patterns.

As shown in Chapter 2, **income distribution** in Lesotho is very skewed. It is worst in the rural areas as shown by the Gini coefficient of 0.69 as compared to 0.51 and 0.53 in the Maseru urban area and other urban areas respectively. As a developing country it is not strange that the results show such a high unequal distribution of income in Lesotho. Nonetheless, this is a problem that does not call for complacency. Appropriate policies should soon be put in place to right the situation. It is likely that the distributional effects accruing from the structural adjustment programme currently in operation could be depressing the already low living standards of the majority of the rural people as well as the urban poor.

Like most other low income countries the study confirms that a high proportion of income in Lesotho is spent on **food items**. On the average, food accounts for 38.4 percent of the average household budget (Table 13). As income increases this share is likely to decrease but food will continue to be the largest expenditure group in the budget of an average low income households. This observation is confirmed by the low elasticities of most food items.

The **clothing** budget share, although smaller than that of food, is relatively significant for a Mosotho average household. Except for blankets, other clothing items are essentials in the rural areas. The reason that the income elasticity of blankets is greater than unity areas has been cited as the problem of aggregation. The same problem also applies for footwear in Maseru urban area.



**Paraffin** is one of the most common sources of energy/fuel in Lesotho. According to Tables 8 – 10, its budget share is highest among the low income groups but decreases as income increases. Its income elasticity is quite low, indicating that paraffin is one of the most essential consumption items.

Expenditure on **building materials** seems to be more pronounced in the rural areas as income rises. This could be the result of income and substitution effects whereby rural households shift away from their traditional housing styles to modern ones. All housing income elasticities but the Maseru urban one are greater than unity. This is an indication that as income rises the budget share on housing will increase.

The budget shares on **public transport** are higher for the lowest 75 percent in the rural areas than in Maseru urban and other urban areas. This observation confirms that public transport is an essential service. And an important expenditure item among the lower households. Given its low income elasticity, its budget share is likely to decrease as income rises, although it will still remain a very important expenditure item among the low income households.

The budget shares for all the four income groups in all domains reflect that **soap and other detergents** are essential commodities. This is also confirmed by the low income elasticities in all the domains. According to the budget shares tables soap takes a higher share in the lowest income households in rural areas.

In all the three domains, expenditure on **medical care** seems to be taking a low share of the average household budget. Among the reason for the low share could be the role of traditional medicine, which is sometimes dispensed on non-cash basis.

Due to aggregation, **expenditure on other items** takes a 30.6 percent share of the average household budget. As most of the commodities in this category are non-essentials the likelihood is that their consumption will increase with an increase in income. This mainly relates to commodities like furniture and household electrical/electronic equipment.

In examining the effect of foreign remittances in consumption patterns, we observed that consumption of most commodities increased in the rural areas, whereas in both the Maseru urban and the other areas it was the opposite.

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## APPENDIX 1

The main aim of the survey was to measure private household incomes and expenditures during 1986/87 in Lesotho. As far as possible, the UN Provisional Guidelines on Statistics of the Distribution of Income, Consumption and Accumulation of Households have been followed.

Details about the coverage and about definitions and concepts are found in reference 1, which contains all the final questionnaires and Guidelines for Supervisors and Interviewers.

The following definitions are particularly important for our study:

- (1) **Consumption Unit** – The consumption unit concept is defined in order to account for household size in multiperson households. A one person household is composed of one consumption unit. Each additional adult is counted as 0.7 consumption unit, and child (up to 19 years) is counted as 0.5 consumption unit.
- (2) **Domestic Non-consumption Expenditure** – this includes direct taxes, legal aid charges, fees, fines and penalties, funerals, contributions to funerals, churches and schools, gifts lobola paid, savings. They are not included in the present study.
- (3) **Expenditure** – The disbursements are classified into domestic consumption expenditures and non-consumption expenditures. Consumption expenditures refer to disbursements on goods and services carried out by the households during the reference period.
- (4) **Household** – A group of persons who live together in the same compound of dwellings and share the same sleeping facilities and/or the same cooking or eating facilities. Servants living in the household and sharing the same cooking or eating arrangements are considered members of the household. However, if they occupy their own quarters (even within the same compound) where

they sleep and prepare their own meals, they are taken to constitute separate households.

The reference unit is a private household as defined above. Institutional households such as hospitals, boarding schools, convents, hotel inmates, etc are excluded from the survey. A private household may comprise one or more persons

- (5) **Income** – There are two income concepts in the survey; cash income and total income. Cash income includes earnings from employment, property income such as rent, interest and dividends, business profits, gifts in cash and kind, migrant workers remittances, current transfers such as pensions. Total income is cash income plus income in kind.
- (6) **Income Groups** - The households in each region have been divided into four different income groups in some of the tables. These are in quartiles.
- (7) **Member of Household** – Ordinary household members are persons who are present during the whole of the reference period and satisfy the above definition of a household or who are absent temporarily for 6 months or less in Lesotho, or absent for 5 years or less outside Lesotho. Temporary guests who slept in the household the night before the day of interview are treated as members of the household. Persons temporarily absent in boarding schools, hospitals and prisons are included as members of the household.
- (8) **Migrant Worker** – A person who is a member of a household but is temporarily absent and working in another location either in Lesotho or outside Lesotho. Daily commuters are not treated as migrant workers. Here, only migrant workers outside Lesotho are counted. Almost all of these are mineworkers in RSA.
- (9) **Other Cash Domestic Disbursements** – These include repayment of loans/credits, and insurance premiums. These transactions are not included in the present study.
- (10) **Rural Areas** – Every part of the country excluding Maseru Urban and Other Urban form the rural areas.

- (11) **Maseru Urban** – This domain comprises all areas which have been officially declared as within the boundaries of the city of Maseru.
- (12) **Other Urban** – The nine district towns (except Maseru), Maputsoe, Morija and Roma comprise what is called other urban.

In general, the 1986 Population Census definitions were followed whenever applicable.

Besides data about income and expenditures, the survey also comprised various facts about dwellings, type of energy used, distances to water and important services, bank connections, possession on any businesses, consumer durables, livestock, etc, and the main source of income of the household.

The survey was carried out during twelve months, October 1986 – September 1987. Seasonal variations are thus included in the data. Each participating household recorded detailed income and expenditure data for one month, and the same number of households (460) were included in any month. For certain items, the reference period was one year, however. The sample design was conducted in such a way as to represent the entire Lesotho as well as rural parts, agroecological zones and administrative districts. The data were collected on four forms:

Form I contained questions on demographic and social characteristics, including housing and the so-called annual items;

Form II was a daily record book, kept by the households, covering quantity and value of all incomes and expenditures in cash, as well as quantities of income and expenditures in kind. Among the latter are consumption of own products, and wages and salaries in kind. There was a special version of this form for business households (Form IIB);

Form III was a weekly summary of cash transactions from Form II, compiled by the enumerator;

Form IV was a summary of transactions in kind from Form II, compiled by the enumerator.

## APPENDIX 2

### Formulas for calculation of the Gini Coefficient and Estimation of Regression Models

#### A. Gini coefficient

The formulation used for the derivation of the Gini coefficient is taken from Fei et al (1980). The following approach, based on a ranking of the units in ascending order, was employed.

The method defines the index as:

$$G_y = 2 U_y/n - (n-1)/n \quad (1)$$

Where  $G_y$  is the Gini coefficient of  $y$  (the income)

$n$  = number of households (or classes)

$$U_y = L_1 Y_1 + L_2 y_2 + L_3 y_3 + \dots + L_n y_n$$

Where  $y_1 < y_2 < y_3 < \dots < y_n$ , and  $L_i$  is the income rank of household  $i$  meaning  $L_1 + 1, L_2 + 2, L_3 + 3 \dots L_n + N$ .

$$L_i = 1, L_2, \dots, L_n, \dots$$

Consequently  $U_y$  is the weighted average of income ranks.

#### B. Regression models

The specification of a model for Engle curve can take different forms. Here, we chose the linear and the semi-logarithm forms. The relative statistical quality of these two representations are compared in terms of standard measure of goodness-of-fit.

The **linear model** has the advantage of satisfying the adding-up criterion, whereas the semi-log does not. Unfortunately, it has been observed in many empirical studies that linear Engle curves have a tendency to produce inferior fits. To counter this problem the **semi-log model** was introduced. The semi-log model was chosen instead of a double-log one because with the latter the elasticity of demand is invariant to consumption and income. In the semi-log model the elasticity of demand

is invariant to consumption and income. In the semi-log model the elasticity of demand is varying to both the level of income and to consumption. All the data is observed per household. Before estimation the figures have been divided by the number of present household members in the household. This was done in order to eliminate the effects of differences in household size. This means that per capita consumption and expenditure were used as endogenous and exogenous variables respectively. This further assumes that there are no economies or diseconomies of scale in the model.

Linear model: 
$$C_{ij} = a_i + b_i y_i + u_{ij}$$

$$\frac{C_{ij}}{n_j} = \frac{a_i}{n_j} + \frac{b_i y_i}{n_j} + \frac{u_{ij}}{n_j}$$

Where  $D_i = 1$  for receivers of foreign remittances  
 $D_j = 0$  for non-receivers

## APPENDIX 3

### Regression Models for different domains

#### A. Linear for all rural areas

Commodity	a	b	t	F	R <sup>2</sup>
Maize meal	2.92	0.045	27	734	0.13
Meat	0.59	0.015	33	1074	0.18
Dairy Products	0.33	0.004	22	474	0.09
Vegetables	0.49	0.009	30	895	0.15
Sugar	0.88	0.012	36	1328	0.22
Non-alcoholic Beverages	0.08	0.002	7	53	0.01
Alcoholic Beverages	0.08	0.023	23	152	0.10
Cigarettes & Tobacco	0.38	0.005	21	458	0.09
Other Food items	2.35	0.070	49	2383	0.33
Footwear	0.94	0.029	26	688	0.13
Blankets	-5.84	0.179	60	3597	0.43
Other Clothing	1.41	0.064	34	1176	0.20
Paraffin	0.92	0.010	28	782	0.14
Soap & Detergent	0.89	0.011	33	10.84	0.18
Other Household Goods	-7.8	0.257	74	5530	0.54
Medical Care	0.50	0.009	11	117	0.02
Public Transport	0.55	0.016	18	339	0.07
Building material	-1.88	0.101	33	1118	0.19
All Other Expenditure	0.98	0.141	41	1689	0.26

A and b are parameter estimates as shown in Appendix 2b. t is the T-value, F the F-test value, and R<sup>2</sup> the coefficient of multiple determination.



## B. Semi-log model for all rural areas

Commodity	a	b	t	F	R <sup>2</sup>
Maize meal	-3.21	2.706	23	515	0.10
Meat	-4.5	0.899	28	771	0.14
Dairy Products	-0.51	0.346	24	596	0.11
Sugar	0.80	0.742	30	922	0.16
Non-alcoholic Beverages	-0.21	0.128	6	41	0.01
Alcoholic beverages	1.53	0.869	15	232	0.05
Cigarettes & Tobacco	-0.24	0.280	16	269	0.05
Other Food items	-6.87	4.101	38	1436	0.23
Foot wear	-3.74	1.995	25	620	0.11
Blankets	-6.84	3.026	11	121	0.02
Other Clothing	-8.06	4.106	30	191	0.16
Paraffin	-1.06	0.807	33	1087	0.18
Soap & Detergent	-0.73	0.698	30	894	0.16
Other Household goods	-14.47	6.304	18	334	0.07
Media Care	-1.27	0.724	12	147	0.03
Public Transport	-1.85	1.037	17	278	0.05
Building material	-8.48	3.702	16	259	0.05
All Other Expenditure	-15.31	7.517	28	833	0.15

### C. Linear model for Maseru Urban Area

Commodity	a	b	t	F	R <sup>2</sup>
Maize meal	-1.17	1.474	12	143	0.07
Meat	-13.81	5.436	20	388	0.17
Dairy Products	-3.39	1.381	19	356	0.16
Vegetables	-2.845	1.314	21	453	0.19
Sugar	-.74	0.565	10	104	0.05
Non-alcoholic Beverages	2.38	0.830	14	211	0.10
Alcoholic Beverages	-10.57	3.956	7	56	0.05
Cigarettes & Tobacco	-2.33	0.922	11	112	0.06
Other Food items	41.65	14.344	24	600	0.24
Footwear	-17.21	5.568	15	217	0.10
Blankets	-4.23	1.410	8	63	0.03
Other Clothing	-37.43	12.000	19	356	0.16
Paraffin	-0.99	1.057	13	164	0.08
Soap & Detergent	-1.723	0.884	14	199	0.09
Other Household Goods	-69.84	20.132	10	101	0.05
Medical Care	-5.36	1.765	8	69	0.03
Public Transport	-4.52	2.033	14	189	0.09
Building \material	-14.21	4.616	7	51	0.03
All Other Expenditure	-105.12	32.490	20	393	0.17

### D. Semi-log model for Maseru urban area

Commodity	a	b	t	F	R <sup>2</sup>
Maize meal	4.51	0.003	4	18	0.01
Meat	5.78	0.022	15	214	0.10
Dairy Products	1.20	0.009	24	592	0.24
Vegetables	1.94	0.005	14	203	0.10
Sugar	1.37	0.002	5	29	0.01
Non-alcoholic Beverages	0.50	0.004	14	204	0.10
Alcoholic Beverages	0.96	0.036	9	79	0.08
Cigarettes & Tobacco	0.64	0.007	15	224	0.10
Other Food items	7.00	0.085	28	809	0.30
Footwear	-0.35	0.051	28	806	0.30
Blankets	0.58	0.008	9	76	0.04
Other Clothing	-1.17	0.110	40	1633	0.46
Paraffin	3.03	0.007	5	28	0.01
Soap & Detergent	1.47	0.004	10	107	0.05
Other Household Goods	-26.39	0.335	42	1799	0.48
Medical Care	0.51	0.011	10	104	0.05
Public Transport	2.87	0.008	10	92	0.05
Building material	1.57	0.026	8	59	0.03
All Other Expenditure	-6.85	0.297	44	1897	0.47

### E. Linear model for Other Urban areas

Commodity	a	b	t	F	R <sup>2</sup>
Maize meal	-0.74	1.529	10	91	0.09
Meat	-7.18	3.597	15	234	0.20
Dairy Product	-1.57	0.862	11	126	0.12
Vegetables	-1.59	0.011	11	113	0.11
Sugar	-0.72	0.595	9	78	0.08
Non-alcoholic Beverages	-0.67	0.304	9	75	0.07
Alcoholic Beverages	-13.19	4.287	13	174	0.08
Cigarettes & Tobacco	-1.35	0.668	6	34	0.03
Other Food items	-28.19	11.501	15	217	0.18
Footwear	-5.17	2.366	9	77	0.07
Blankets	-4.54	1.691	6	36	0.04
Other clothing	-22.59	8.437	13	170	0.15
Paraffin	-1.13	1.145	11	112	0.10
Soap & Detergent	-1.36	0.838	10	104	0.10
Other Household Goods	-43.03	14.347	8	62	0.06
Medical Care	-2.02	0.866	4	13	0.01
Public Transport	-2.28	1.041	6	32	0.03
Building material	-12.39	4.309	5	22	0.02
All Other Expenditure	-58.54	20.693	9	76	0.07

## F. Semi-log model for Other Urban areas

Commodity	a	b	t	F	R <sup>2</sup>
Maize meal	4.36	0.006	5	26	0.03
Meat	3.55	0.029	17	284	0.23
Dairy Products	1.15	0.005	9	81	0.08
Vegetable	1.55	0.006	9	87	0.08
Sugar	1.19	0.003	6	39	0.04
Non-alcoholic Beverages	0.31	0.002	6	36	0.04
Alcoholic Beverages	0.000	0.038	18	338	0.15
Cigarettes & Tobacco	0.57	0.006	7	51	0.05
Other Food items	4.76	0.109	20	391	0.29
Footwear	2.32	0.014	7	49	0.05
Blankets	0.29	0.016	8	58	0.06
Other Clothing	2.23	0.073	15	234	0.20
Paraffin	2.52	0.007	8	62	0.06
Soap & Detergent	1.12	0.07	11	128	0.12
Other Household Goods	-10.33	0.232	19	364	0.28
Medical Care	0.75	0.005	3	7	0.01
Public Transport	1.03	0.006	4	20	0.02
Building material	-0.75	0.049	7	50	0.05
All Other Expenditure	-58.54	20.693	9	78	0.07

### G. Liner model for all rural with remittances dummy (g)

Commodity	a	b	g	t	tg	F	R <sup>2</sup>
Maize meal	3.29	0.045	-0.933	27.29	-2.99	372	0.13
Wheat Flour	1.17	0.021	0.625	27.25	4.39	400	0.14
Meat	0.55	0.015	0.119	32.37	1.42	537	0.19
Dairy Products	0.25	0.004	0.215	21.01	5.61	254	0.10
Vegetables	0.45	0.009	0.103	29.50	1.74	449	0.16
Sugar	0.87	0.012	0.017	36.14	0.27	664	0.22
Non-alcoholic Beverages	0.03	0.002	0.129	6.97	2.41	30	0.01
Alcoholic Beverages	0.20	0.023	-0.313	-22.66	-2.10	258	0.10
Cigarettes & Tobacco	0.47	0.005	-0.229	21.91	-5.14	243	0.09
Other Food items	2.27	0.069	0.211	48.38	0.78	1192	0.33
Footwear	0.70	0.029	0.604	25.74	2.84	349	0.13
Blankets	-4.00	0.182	-4.383	60.85	-7.83	1851	0.44
Other Clothing	0.90	0.063	1.292	33.66	3.65	596	0.20
Paraffin	0.77	0.010	0.387	27.17	5.74	410	0.15
Soap & Detergent	0.86	0.11	0.075	32.55	1.23	543	0.18
Other Household Goods	-6.18	0.258	-2.271	74.34	-3.49	2778	0.54
Medical Care	0.41	0.009	0.213	10.56	1.33	59	0.02
Public Transport	0.36	0.016	0.484	17.95	2.93	174	0.07
Building material	-2.53	0.010	1.644	32.88	2.89	564	0.19
All Other Expenditure	0.269	0.140	1.810	40.51	2.79	850	0.26

G stands for the parameter estimate for the remittance dummy, see Appendix 2B, and tg the T-value for this estimate.

## H. Linear model for Maseru urban areas with remittances dummy (g)

Commodity	a	b	g	t	tg	F	R <sup>2</sup>
Maize meal	4.55	0.003	-0.194	4.20	-0.49	8.99	0.01
Wheat Flour	3.09	0.008	-0.078	15.13	-0.27	115	0.11
Meat	6.18	0.022	-2.069	14.57	-236	110	0.10
Dairy Products	1.23	0.009	-0.148	24.30	-0.69	296	0.24
Vegetables	1.97	0.005	-0.131	14.22	-0.66	101.52	0.09
Sugar	1.30	0.002	0.393	5.44	2.28	17	0.02
Non-alcoholic Beverages	0.58	0.004	-0.92	14.26	-2.24	104	0.10
Alcoholic Beverages	1.89	0.035	-2.857	8.77	-1.95	41	0.08
Cigarettes & Tobacco	0.77	0.007	-0.641	14.92	-2.47	115	0.11
Other Food items	7.73	0.086	-3.807	28.41	-2.21	408	0.30
Footwear	-0.17	0.051	-09.69	28.36	-0.95	403	0.30
Blankets	0.52	0.008	0.313	8.71	0.58	38	0.04
Other Clothing	-1.49	0.110	1.691	40.42	1.085	817	0.46
Paraffin	2.99	0.002	0.186	5.33	0.71	14	0.01
Soap & Detergent	1.47	0.003	0.037	10.36	0.18	54	0.05
Other Household Goods	-27.83	0.335	7.501	42.46	1.66	902	0.48
Medical Care	0.50	0.011	0.038	10.20	0.06	52	0.05
Public Transport	2.92	0.008	-0.217	9.60	-0.47	46	0.05
Building material	0.45	0.027	5.854	7.74	2.97	34	0.03
All Other Expenditure	-5.49	0.297	-7.078	43.53	-1.81	951	0.50

## I. Linear model for Other urban area with remittances dummy (g)

Commodity	a	b	g	t	tg	F	R <sup>2</sup>
Maize meal	4.24	0.006	0.397	5.15	0.84	13	0.03
Wheat Flour	2.47	0.009	1.457	6.70	3.07	26	0.05
Meat	4.19	0.089	-1.974	16.71	-3.03	148	0.24
Dairy Products	1.12	0.005	0.079	8.97	0.35	40	0.08
Sugar	1.13	0.003	0.190	6.32	0.97	20.12	0.04
Non-alcoholic Beverages	0.39	0.002	-0.259	5.85	-2.56	21.42	0.04
Alcoholic Beverages	0.25	0.038	-1.323	18.37	-1.39	170	0.15
Cigarettes & Tobacco	0.76	0.006	-0.577	7.03	-1.78	27	0.05
Other Food items	6.87	0.109	-6.448	19.64	-313	202	0.30
Footwear	2.10	0.014	0.662	7.04	0.86	24.84	0.05
Blankets	0.33	0.016	-0.115	7.61	-0.14	29	0.06
Other Clothing	2.29	0.073	-0.185	15.24	-0.10	117	0.20
Paraffin	2.54	0.007	-0.045	7.87	-0.14	31.22	0.06
Soap & Detergent	1.15	0.007	-0.105	11.28	-0.45	64	0.12
Other Household Goods	11.37	0.232	3.187	19.07	0.70	181.94	0.28
Medical care	0.94	0.005	-0.583	2.65	-0.85	4.02	.001
Public Transport	0.73	0.006	0.938	4.52	1.79	11.38	0.02
Building material	-2.03	0.049	3.916	714	1.51	26.08	0.05
All Other Expenditure	-17.82	0.411	-0.964	31.40	-0.20	495	0.51