Income Distribution and Inequality in Lesotho: The Case of Lorenz-Crossing

Mamotlohi Mohanoe- Mochebelele¹* Maluke Letete²*& Marema Raleting³*

Abstract

This paper analyses the income inequality in Lesotho districts using Household Budget Surveys of 1994/95 and 2002/03. Lorenz curves are used to measure the degree of income inequality in each district. The results show that the income inequality declined in most districts between the two survey periods except in Butha-Buthe where it remained constant. Despite these declining trends inequality remains relatively high in comparison to international standards. In the Lorenz ordering, the phenomenon of Lorenz crossing is revealed.

Keywords: Lesotho, Income Inequality, Lorenz Curve, Gini Coefficient, and Lorenz-Crossing

JEL Classification: D74, K42, I32

1. Introduction

The subject of income distribution and inequality, although relatively neglected by economists for several decades, has gained resurgence of interest in empirical work. This resurgence is driven partly by developments in economic theory, interpersonal income distributions within many developed and developing countries, micro-data on incomes in developing countries, which has facilitated not only the analysis of income distribution within each country concerned but the tricky question of meaningful international comparison (Atkinson 1970, Cowell 1977).

Central to the remarkable growing interest in the subject of income inequality is the recognition of social policy interventions/descriptions, in addressing questions of whether more resources should be devoted to redistribution programmes, the meaning of tax progression and so on. This approach to income distribution itself finds pedigree in the works of Ricardo who gave income distribution a central place in the 19th century under political economy. Although, Ricardo's contribution is highly cherished in economic literature, his contributions did not address income inequality per-se. The phenomenon of income inequality was only addressed by Ricardo's successors in economic thinking such as Kutznet (Sen and Foster, 1997).

^{1.} Central Bank of Lesotho, Department of Financial Markets, Email: mmochebelele@centralbank.org.ls, Tel: +266 22232123

^{2.} • Department of Economics, National University of Lesotho, Email: br.letete@nul.ls, Tel: +266 22213591

^{3.} Mmatikoe High School, Lesotho, Tel: +266 58474478

Despite several debates that emerged on the subject of income inequality after 19th century, no clear picture has surfaced relating to causes, consequences and policy options to redress the situation. The empirical facts are subject to differences in opinions, conflicting theories and approaches, and above all, intellectuals' failure to agree on what a proper or fair income distribution should be. These conflicting approaches to the subject of inequality have, as a result, not minimized the situation and as such income inequality has remained a source of world wide social upheaval.

With particular reference to Lesotho, the gap between the rich and the poor has remained almost the same over the past decade; hence inequality and poverty remain the greatest challenges to Government. For instance, in 2003/04, income inequality as measured by Gini-coefficient was estimated at 0.52 whereas in 1994/95, it was estimated at 0.57, (BoS, 2007). Although, there seems to have been some decline in income inequality, it remains high relative to the desired level and recommended standards of 0.30 to 0.35 (see Sadoutlet, 1995). Income inequality remains particularly higher for household headed by females. Several policy questions emerge from this devastating situation. These include: whether policy interventions pursued in Lesotho are well designed and targeted at reducing inequality and poverty, what is it that explains the status quo? The aim of this paper therefore is to diagnose stagnating inequality levels and poverty in Lesotho with a view of identifying the best policy interventions that can help to redress the situation.

2. Income Inequality in Economic Literature

Income distribution has always been a central concern of economic theory and policy. Although first addressed by the Classical economists such as Adam Smith, Thomas Malthus and David Ricardo, based on the principle of fairness, income inequality itself was given less attention, as these economists were mainly concerned with the distribution of income between the factors of production (i.e factor income distribution). However, modern economists addressed income distribution focusing more with the distribution of income across individuals and households. This modern approach gave birth to important theoretical and policy concerns including the relationship between income inequality and economic growth as well as social aspects of income.

In 1955, Kuznets stated that inequalities in personal income distribution necessarily increase in early stage of the transformation process, from an agrarian to an industrial and service society. These inequalities, however, stabilize and subsequently decrease with further development. Kuznets believed that as a country grew richer its government would make a greater effort towards social spending. Though the arguments under Kuznets hypothesis have been supported in the literature (e.g Baba et al, 1989), it has also been criticized (e.g Lempert, 1987 and Dasgupta 1993, Dasgupta *et al* 2002). For instance, Kuznets' conclusion that inequality must increase before decreasing is said to rest on shaky grounds especially when cross-sectional

data is used. Lempert (1987) showed that the U-shape of the Kuznets' curve comes not from progression in the development of individual countries, but rather from historical differences between countries. In his work, Lempert argues that Kuznets considered many of the middle income countries mostly from Latin America, a region with historically high levels of inequality in his data set. When controlling for this variable, the U-shape of the curve tends to disappear. In accounting for historical changes, Lempert introduced a time dimension and a political dimension to the curve, showing how population and politics interact with economic inequality over time. Other theories of income distribution stress that there are certain factors that cause income inequality. These include, but not limited to: first, the labour market, the role of labor market opportunities in the structure of the income distribution is well documented in the literature. For instance, Cowell and Jenkins (1995) believe that the major cause of economic inequality within modern market economies is the determination of wages by the market. In this view, inequality is caused by the differences in the supply and demand for different types of work. For instance, a job where there are many willing workers (high supply) but only a small number of positions (low demand) will result in a low wage for that job since competition between workers drives down the wage and vice versa.

Second, education, many economists (e.g., Binswanger and Deiniger, 1997, Ghatak 1995, and Fu et al 2002,) believe that a major reason the world has experienced increasing levels of inequality since the 1980s is due to increase in the demand for highly skilled workers in high-technology industries. They believe that this has resulted in an increase in wages for those with high level of education, but has not increased the wages of those without education, leading to greater inequality. Access to education is among the most important factors behind inequality and variation in individuals. Third, globalization, such that when rich countries trade with poor countries, the low-skilled workers in the rich countries may see reduced wages because of competition. Trade economist Krugman (1995, 2008) estimates that trade liberalisation has had a measurable effect on the rising inequality in the United States. He attributed this trend to increased trade with poor countries and the fragmentation of the means of production, resulting in low skilled jobs becoming more tradable. However, he conceded that the effect of trade on inequality in America is minor when compared to other causes, such as technological innovation, a view shared by other experts. For instance Katz (2008), estimated that trade has only accounted for 5-15% of rising income inequality hence disputed such relationship. In particular, Katz argued that technological innovation and automation has meant that machines in rich countries have replaced low-skilled jobs, and that rich countries no longer have significant numbers of low skilled manufacturing workers that could be affected by competition from poor countries⁴.

Fourth, wealth condensation, theoretically, wealth condensation is a process

^{4.} See also Von Braun (2007)

by which, under certain conditions, newly-created wealth concentrates in the possession of already-wealthy individuals or entities. According to this theory, those who already hold wealth have the means to invest in new sources of creating wealth or to otherwise leverage the accumulation of wealth, thus are the beneficiaries of the new wealth. Over time, wealth condensation can significantly contribute to the persistence of inequality within societies.

As example of wealth condensation, savings from the upper-income groups tend to accumulate much faster than saving from the lower-income groups. Upper-income groups can save a significant portion of their incomes. On the other hand, lower-income groups barely make enough to cover their consumptions, hence only capable of saving a fraction of their incomes or even none. Related to wealth condensation are the effects of intergenerational inequality. The rich tend to provide their offspring with a better education, increasing their chances of achieving a high income. Furthermore, the wealthy often leave their offspring with a huge inheritance, which in turn jump-start the process of wealth condensation for the next generation (see Bouchaud and Mezard, 2000).

Other types of analysis emphasize the importance of characteristics such as gender, race, diversity of preferences, culture, development patterns (as explained by Kuznets' hypothesis). It is posited that these factors explain the major part of observed income inequality and changes in income inequality.

2.1. Measurement of Income Inequality

One of the fundamental macroeconomic objectives concerns the distribution of income among individuals or households⁵. In the literature, equality or inequality of the distribution of income could be measured in three ways. The first measure is the Lorenz curve, popularized by Lorenz in 1905. Another measure of inequality is the Gini coefficient or Gini ratio invented in 1912 by Corrodo Gini. This ratio is obtained by dividing the area of the inequality shown on a Lorenz curve by the area of the right-triangle formed by the axes and the diagonal or equality line. The Gini ratio varies between zero and one (empirical research has shown that Gini coefficient generally ranges between 0.30 and $0.70)^6$. The last possible way of measuring the distribution of income is to use a quantile ratio. This is the ratio between the percentage of income received by the lowest say *y* percent of the population. The discussion will focus more on Lorenz curve which is where the study concentrates.

The Lorenz curve is a graphic device that illustrates the degree of inequality in the distribution of income. To construct the Lorenz curve, illustrating the distribution of income, different individuals or households in the economy have to be ranked from poorest to richest. This is done on a cumulative percentage basis. The cumulative

^{5.} Distribution of income is divided into personal and functional, the latter is concerned with the distribution of income between factors of production. This study focuses on personal distribution of income.

⁶ Multiplying the Gini ratio by 100 derives what is known as Gini index which varies between 0 and 100.

percentages of the population are plotted along the horizontal axis and the vertical axis shows the cumulative percentage of total income. Figure 2.1 shows the Lorenz curve.

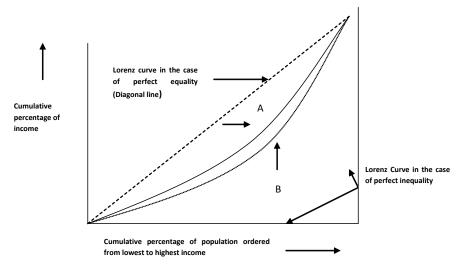


Figure 2.1: Theoretical Representation of the Lorenz curve

In this curve, the degree of equality is shown by the deviation from the diagonal line. The greater the distance between the diagonal and the Lorenz curve, the greater the degree of inequality. Because the population of income recipients is ordered from lowest to highest, the change in the cumulative percentage of income is always larger for the recipient *i* than it is for recipient *i*-1 and therefore Lorenz curves always have the convex shape.

2.1.1. Inequality comparisons of two income distributions

When two income distributions are compared (say X and $Y \in \Omega$), if the Lorenz curve for distribution X lies somewhere above and never below the Lorenz curve for distribution Y, then X is said to Lorenz-dominate Y, denoted $L_X > L_Y o X >_L Y$. In this case income distribution X is more equal than Y. Another case is when the two distributions have the same Lorenz curve. This is the case of Lorenz coincidence, denoted $L_X = L_Y o X =_L Y$. The last case is the Lorenz crossing. In this case, the Lorenz curves of the two income distributions cross and hence inequality of the two cannot be compared using Lorenz criterion. Shorrocks and Foster (1987) and Fields (1993) suggest choice of inequality measures (such as inequality index) that are consistent with Lorenz ordering even when there is Lorenz crossing.

2.2 Empirical literature

Inequality of income has been one of the core issues in economic research for centuries in many countries. Empirical research has shown a clear link between income inequality and social cohesion. In 2002, Uslaner and Brown showed that there

is a high correlation between the amount of trust in society and the amount of income equality. Putnam established links between social capital and economic inequality for some countries. His most important studies (Putnam, *et al* 1993, Putnam 2000) established these links in both the United States and in Italy. On the relationship of inequality and involvement in community he says:

Community and equality are mutually reinforcing... Social capital and economic inequality moved in tandem through most of the twentieth century. In terms of the distribution of wealth and income, America in the 1950s and 1960s was more egalitarian than it had been in more than a century... Those same decades were also the high point of social connectedness and civic engagement. Record highs in equality and social capital coincided. Conversely, the last third of the twentieth century was a time of growing inequality and eroding social capital... The timing of the two trends is striking: somewhere around 1965-70 America reversed course and started becoming both less just economically and less well connected socially and politically (Putnam 2000).

In addition to affecting levels of trust and civic engagement, inequality in society has also shown to be highly correlated with crime rates. Most studies looking into the relationship between crime and inequality have concentrated on homicides. Studies on this relationship showed tendencies for violence to be more common in societies where income differences are larger. These studies have been conducted comparing developed countries with undeveloped countries. For instance, Daly et al. 2001 found that among United States and Canadian Provinces there is a ten-fold difference in homicide rates related to inequality. They estimated that about half of all variations in homicide rates could be accounted for by differences in the amount of inequality in each province or state. Similar and robust relationships were found worldwide by different researchers and academic investigators. These include Fajnzylber et al. (2002), Lee and Bankston (1999)⁷.

Recently, there has been increasing interest on the subject of economic inequality and its relation to the health of populations. There is a very robust correlation between socio-economic status (SES) and health. This correlation suggests that, it is not only the poor who tend to be sick when everyone else is healthy, but that there is a continual gradient, from the top to the bottom of the socio-economic ladder, relating status to health. The phenomenon often called the "SES Gradient". However, there has been a debate regarding the cause of the SES Gradient. A number of researchers (Leigh and Jencks (2006) and Clarkwest and Jencks (2003) noted a definite link between economic status and mortality due to the greater economic resources of the wealthy, but they find little correlation due to social status differences. Other

Findings from these Authors are summarized in the Economic Inequality

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researchers such as Wilkinson (2005), Lynch *et* al. (2000), and Daly *et* al. (1998) have found that socioeconomic status strongly affects health even when controlling for economic resources and access to health care. It has also been found that amongst the wealthiest quarter of countries on earth (e.g Luxembourg, Slovakia, etc.) there is no relation between a country's wealth and general population health (Sapolsky, (2005) - suggesting that past a certain level, absolute levels of wealth have little impact on population health, but relative levels within a country do.

Another group of economists investigated income inequality by looking at its relationship with other variables. A number of them have focused on its relationship with economic growth using econometrics. However, results from these studies revealed conflicting conclusions; some studies conclude that there is a negative effect of inequality on growth and others a positive. In their study Cornia and Court (2001) concluded that too much equality (Gini coefficient below 0.25) negatively impacts growth due to incentive traps, free-riding, labour shirking, and high supervision costs. They also concluded that high levels of inequality (Gini coefficient above 0.40 and above) negatively impacts growth, due to erosion of social cohesion, social conflicts, and uncertain property rights. They advocate for policies which put equality at the low end but efficient range.

Barro (2000) argued that inequality reduces growth in poor countries and promotes growth in rich ones. Pagano (2002) used Granger causality to explain these previous findings. His research suggested that inequality had a negative effect on growth while growth itself increased inequality. This two-way interaction largely explains the contradiction in past research. Though many studies seem to suggest that growth increases inequality, several of them conclude that the benefits of growth exceed the disadvantages to the poor (see Heshmati, 2006).

Recent research shows that most countries of the world face the income inequality challenge. For instance, Greg (2007) posited that even rich countries like America does face incidence of income inequality. In 2005, data from the internal revenue showed that the wealthiest 1 percent of Americans earned 21.1 percent of all income. This was high compared with 19 percent observed in 2004, and surpassed the previous high of 20.8 percent set in 2000, at the peak of the previous bull market in stocks. Conversely, the bottom 50 percent of Americans earned only 12.8 percent of all income, down from 13.4 percent in 2004 and a bit less than their 13 percent share in 2000.

In most developing countries, especially in Africa, the incidence of income inequality is accompanied by poverty. For instance, the household income and expenditure surveys for the period 1995-2003 indicated that the income inequality is still high in South Africa, Uganda⁸ and Lesotho. In South Africa, there seem to be a general increase in income inequality for the African race group (Fedderke et al, 2000). In Lesotho, the poorest 50 percent of the population had a command of only

For Uganda see Himelein (2007)

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27 percent of total expenditure, compared to the richest 10 percent of household who accounted for over half (51.7 percent) of total consumption. The poorest 80 percent of households have all diminished their relative positions in terms of expenditure shares. The large increase in the overall Gini coefficient was seen to be the result of much increased inequality among those in rural areas and possibly increased inequality between rural and urban areas, (May et al, 2004)⁹.

In 2006, Xiaolu predicted that income inequality in urban and rural areas and between urban and rural residents reached the maximum at the per capita GDP levels and suddenly started to decrease. The study showed that urban income inequality did not diminish in the extreme long term, that is, before a certain GDP per capita level is achieved. On the other hand, the rural income inequality achieved the maximum at a certain per capita GDP level before contracting, and urban-rural income inequality never decreased. For a selection of studies on growth and convergence in per capita incomes see also Heshmati (2006).

The Development Policy Research Unit (2001) undertook a study which aimed at outlining key human development indicators in the Southern African Development Community (SADC) and highlighted important policy issues arising from areas requiring urgent developmental attention, it is observed that SADC countries like Namibia, Zimbabwe, Malawi, and South Africa were experiencing highest income inequality rates between 1990 and 1998. This was represented by Gini coefficient value of 0.70, 0.63, 0.62, and 0.59 respectively. The study further showed that in 1998, about a third of the SADC region was stricken by poverty (measured by Human Poverty Index (HPI)) hence the region was found to be extremely impoverished in terms of survival prospects, knowledge, economic provisioning and nutrition¹⁰. During the same period, the most poverty stricken country in SADC was Angola (with HPI of 54.7 percent) and the least was Mauritius (HPI was 11,5 percent). South Africa was the second least poverty stricken country (with HPI of 20.2 percent) followed by Lesotho (HPI of 23.3 percent). For the whole of Africa, Ali (1996) undertook a study which showed that in Africa, at least 250 million people were living on less than the equivalent of \$1 a day in 1995. This implied that majority of African people live below their national poverty lines.

The literature on economic inequality shows that economic inequality refers to disparities in the distribution of economic assets and income. The term could refer to inequality among individuals and groups within a society, but can also refer to inequality among nations or inequality among factors of production. The literature, as reviewed, shows that it is really a contested issue whether economic inequality is a positive or negative phenomenon, both on utilitarian and moral grounds. Furthermore, the nature, measure, cause and importance of economic inequality are open to broad debate. It has been found that a country's economic structure or system, crime, and

Heshmati (2006) argue that the literature on economic equality is growing owing to increasing interest in measuring and understanding the level, causes and development of income inequality and poverty.
Kausah et al. (2006) found the similar effect on income inequality and putrition

^{10.} Kawach et. al, (2006) found the similar effect on income inequality and nutrition

differences in individuals' abilities to create wealth are all involved in the creation of economic inequality.

3.0 Conceptual Framework

As earlier shown, there are various ways of measuring income distribution and income inequality. Two commonly used measures are the Lorenz curve and Gini coefficient¹¹. Evans (2008) shows that the Lorenz curve allows flexible analysis of equity since it is not limited to a specific type of population or variable that is distributed among that population. To measure income inequality in the case of Lesotho, the Lorenz curve is used as proposed by Lorenz (1905).

3.1 The Lorenz Curve

The Lorenz curve is the graph that represents income distribution (see section 2.1). Such that the income share is calculated by taking the cumulated income of a given share of the population, divided by the total income Y, as follows:

$$L\left(\frac{k}{p}\right) = \sum_{i=1}^{k} \frac{y_i}{Y}$$

Where k = the position of each individual in the income distribution p = the total number of individuals in the distribution $y_i =$ the income of the i^{th} individual in the distribution Y = the total income

To determine the degree of income inequality in Lesotho districts, the Lorenz curves were sketched. The proportion of the population ranked from poorest to the richest is plotted on the x-axis and the percentage of income accruing to the bottom percentage of the population on the y-axis. Everyone was ranked according to his/her income, and then the cumulative income was plotted against these ranks. The straight (45 degree) line was drawn from the origin, which is line of perfect equality of income. The aim of drawing this line is to detect the extent of the degree of the Lorenz curve relative to this diagonal line. If the income is evenly distributed in each district, the Lorenz curve becomes closer to the diagonal line (45 degree line). But, if the distribution is uneven, the Lorenz curve will be far away from the diagonal line.

3.2 Data sources and type of data

For this study, data on household budget survey is used. This is a cross sectional data obtained from the Bureau of Statistics Lesotho. The household budget surveys in Lesotho were conducted in 1972/1973, 1986/1987, 1994/1995 and 2002/2003. The

^{11.} These are common when household budget surveys are used. There are other approaches used when GDP data is used instead. These include Schultz and Quah's approach, Bourguignon and Morrissons's approach, Sala-i-Martin's approach and Park's approach.

data used for the study is derived from 1994/1995 and 2002/2003 household budget surveys as they may depict the most recent income inequality degree/status.

3.3 Results and Discussions

The Lorenz curves for all the ten districts of Lesotho were constructed. The Gini coefficients were already calculated in the Household Budget Survey of 2002/03 and 1994/95.

DISTRICT	GINI COEFFICIENT (PER ADULT EQUIVALENT)	
	2002/03	1994/95
Butha Buthe (BB)	0.49	0.49
Leribe (LR)	0.49	0.56
Teya-Teyaneng (TY)	0.49	0.54
Maseru (MSU)	0.55	0.59
Mafeteng (MF)	0.48	0.57
Mohale`s Hoek (MH)	0.53	0.57
Quthing (QT)	0.51	0.45
Qacha`s Nek (QCH)	0.48	0.54
Mokhotlong (MK)	0.52	0.56
Thaba Tseka (TT)	0.50	0.55
Lesotho	0.52	0.57

Table 3.1: Gini Coefficient for Household by District, 2002/03 and 1994/95

Source: Bureau of Statistics Lesotho, (2006)

Table 3.1 shows that the Gini coefficient for Lesotho was 0.52 in 2002/03 down from 0.57 in 1994/95. This shows that income inequality, though declined, is still high in Lesotho. Among the districts, Mafeteng showed a large decrease in income inequality, its Gini coefficient decreased by 0.09. The table shows that income inequality decreased in all districts except Quthing, where it increased by 0.06 and Butha Buthe, where it remained constant at 0.49 percent. The table reveals also that Maseru had the highest income inequality in both surveys, that is, it had Gini coefficient of 0.59 in 1994/95 and 0.55 in $2002/03^{12}$.

The table further shows that in 2002/03, some districts (Mafeteng, Leribe, Qacha's Nek, Butha-Buthe and Teya-teyaneng) were striving towards equality of income, that is, they had Gini coefficients below 50 percent.

^{12.} This is in line with empirical evidence that income inequality is high in urban areas

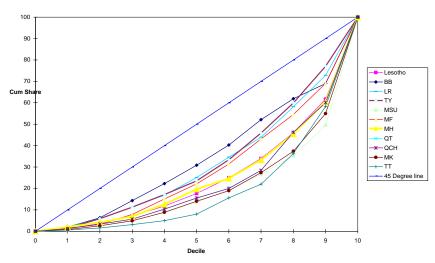
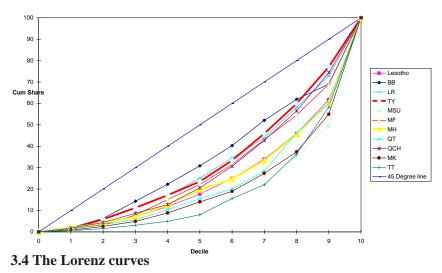


Figure 3.1: Lorenz curves for 1994/95: Household Consumption in Lesotho Districts per Adult Equivalent

Figure 3.2: Lorenz curves for 2002/03: Household Consumption in Lesotho Districts per Adult Equivalent



3.4 Lorenz Ordering

Figures 3.1 and 3.2 presents Lorenz curves for all the 10 districts of Lesotho between 1994/95 and 2002/03 respectively. The Lorenz ordering provides a practical way of deciding when one income distribution is more or less equal than another. However, this is done in the case of Lorenz dominance and coincidence. In the case of Lesotho, it is evident that the ordering depicts Lorenz crossing, a situation which did not allow comparison of income inequality for the districts based on the Lorenz curves. Nonetheless, Lorenz ordering was still made between two to three districts where there was no Lorenz crossing. For instance, in figure 3.2, it is evident that Teya-

teyaneng Lorenz dominates several districts such as Mokhotlong, Thaba-Tseka, and Mohales' Hoek. To enable Lorenz ordering, the Literature suggests choice of inequality measures that are consistent even when there is Lorenz crossing. These measures include, range, variance, squared coefficient of variation and Theil's inequality indices¹³. This opens gap for further research in the area.

4. Conclusion

The aim of the study was to determine the extent of income inequality in each district of Lesotho and compare the income inequality between these districts. The data showed that the national income inequality, measured by Gini coefficient, declined from 0.57 in 1994/95 to 0.52 in 2002/03. At district level, Butha-Buthe is among the districts with low income inequality over the two survey-periods. However, the researchers note with surprise that Butha-Buthe is the district with the most incidence of poverty in terms of people living below poverty line, yet it has the least income inequality. This is contrary to the empirical evidence that income inequality and poverty complement each other. The study shows that Mafeteng and Qacha`s Nek have lowest income inequality while Maseru had the highest. These finding are consistent with empirical evidence that urban areas seem to have high incidence of income inequalities.

To constrain the amount of economic inequality within a society, there are certain factors to be targeted. These factors may be divided into two general classes: government sponsored, and market driven. The relative merits and effectiveness of each is a subject of debate and experiences.

In the case of Lesotho, it is observed that, the GoL tried several interventions to reduce income inequality and poverty. Since 2000, strategies and policies were put in place to fight poverty and empower the poor. This was highlighted by drafting of the very important national documents such as the Vision 2020, the Lesotho PRSP and the Millennium Development Goals reports. Following these, the government of Lesotho adopted the Free Primary Education (FPE) system; this, in the long run, will increase the supply of skilled labor and reduce income inequality as suggested by literature. Also, the tax system in Lesotho is progressive hence benefiting the poor; and reduces income inequality. More importantly, Lesotho is among the countries that subsidize essential goods and services such as, health care, education and other social services. In this way, the government is effectively increasing disposable income of the poorer members of the society and therefore reduces the amount of inequality.

Despite the efforts made by the GoL to reduce income inequality, it still remains a major concern. This means that, the government driven policies, though attractive, seem not to have worked effectively and they may backfire. This suggests that maybe the GoL should change strategy and try to concentrate on indigenous

^{13.} Detailed explanation of these measures could be found in Sen and Foster (1997)

policies (not donor driven) or allow market driven factors. Proponents of market driven factors posit that the growth of government would create a privileged class (such as the nomenklatura in the Soviet Union) who use their position within the government to gain unequal access to economic resources, thereby increasing economic inequality¹⁴. This means that the already privileged control the political life of a country, as happened in Brazil where the country's military dictatorship (1964-1985) allowed the country to become the most economically unequal in South America. By trickle-down effect, in a market–driven economy, wealthy people will tend not to value their last money as much as poor people. This in turn could redistribute wealth from the rich to the poor.

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^{14.} See Gershenson and Grossman (2001),

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