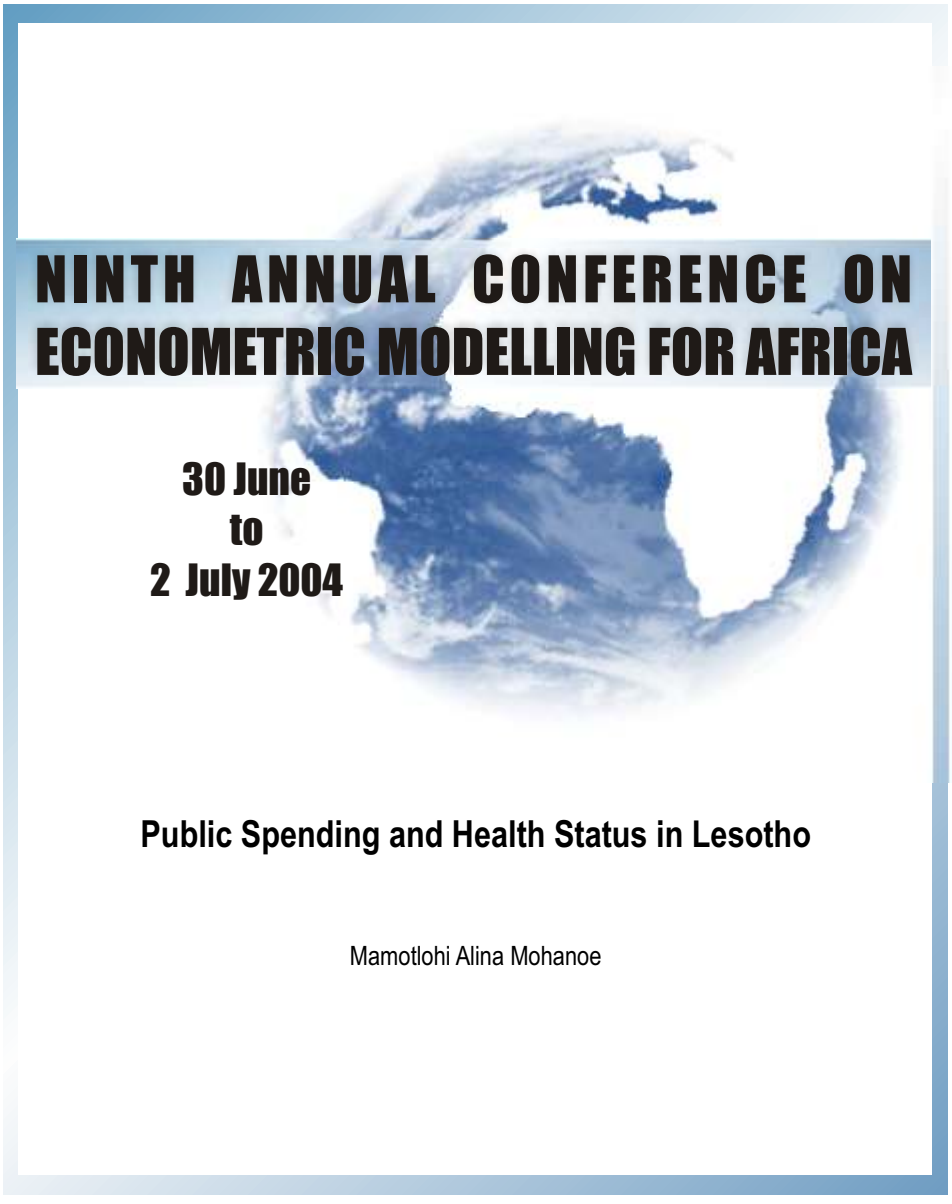

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Public Spending and Health Status in Lesotho

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Abstract

The study was embarked upon to examine the relationship between public spending and health status in Lesotho using simple but conventional econometric techniques. Three measures of health status [life expectancy at birth (years), infant mortality rate and under five-mortality rate (per 1000 live births)] were used. The results revealed that availability of physicians and public expenditure on health are the most important determinants of health status in Lesotho. Contrary to findings from earlier studies however, the analyses found income per capita to be a rather insignificant determinant of health status. The policy implications that emanate from this paper are for the government of Lesotho to channel more resources in hiring/educating more physicians and to increase the share of public spending on health.

Key Words

Fiscal Policy, Health Status, Error Correction Model, Sub-Saharan Africa, Lesotho

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1. INTRODUCTION

An important policy option open to many governments in the attempt to improve social welfare of their citizens is to change the composition and direction of public expenditure. Chenery et al. (1974), Selowsky (1979) as well as Musgrove (1996) viewed this option as having important potential in most developing countries for two major reasons. Firstly, government expenditures are found to constitute a significant proportion of national income and as such changes in the direction of expenditures can have a far-reaching effect on the real incomes of the lowest income groups and therefore the poor. Secondly, the use of annual fiscal budget to increase the consumption of specific goods and services of the poor in the society has the capacity of transferring and redistributing income. This is because it is not just income that is unequally distributed in most countries of the developing world, human deprivation in terms of lack of access to safe water and sanitation facilities, lack of access to basic education and primary health care also characterise these countries. The sheer magnitude of public expenditures therefore makes government extremely important in the functioning of the economy such that these widely observed inequalities could be bridged to a reasonable extent, and accessibility to essential services, particularly to primary health care could be guaranteed to the poor.

However, in the last three decades, and particularly in most developing countries, economists have continued to question as to whether the distributional effects of public spending have actually been achieved by current practices. This is because despite the significant increases in public expenditure on health, education and other social services, majority of the people continue to live below the minimum poverty line of $1 (in purchasing power parity terms) a day (World Bank, 2000). Similarly, wide disparities continue to exist in terms of access to basic social services, such as health facilities, sanitation facilities, safe drinking water, and basic education in many developing countries. Furthermore, the indicators of a healthy living or health status, such as infant mortality rate (per 1000 live births), under-five mortality rate (per 1000) and life expectancy at birth (years) have not witnessed significant improvement over the years.

Thus according to Van de Walle (1995), the poor results associated with the distributional outcomes of public spending in developing countries over the years can be viewed from two angles. Firstly, he identified the situation with lack of alternative policy tools, in developing countries as opposed to developed countries where comprehensive income taxes have proved not to be viable options for income redistribution. Secondly, he considered how the need for adjustment programmes might have forced many governments in developing nations to face sharp and mostly unpleasant trade-offs between the need to reduce government expenditures and at the same time provide certain public services such as basic schooling and health-care.

In response to the growing inability of governments in developing countries to meet distributional goals with fiscal policy actions, there emerged a paradigm shift in the early 1990s. The idea as to how to effectively redirect strategies and actions towards public spending that improve health status of nations began to assume a centre-stage in international funding and assistance programmes (World Bank 1990, 1991; UNDP 1990; ADB 1992; IFAD 1992). The case been made is that the development of human capital needed to be encouraged and expanded through primary education and basic health care, largely provided publicly. In addition, that there should be a need for a well-targeted social safety nets, provided by the state, to guard the poor and vulnerable against food and other insecurities.

Like most countries in sub-Saharan Africa, Lesotho has made dramatic changes during its period of reform since 1988. Though one of the major focus was the curtailing of government expenditure, expenditure in the social sectors (mainly education and health) has been on the increase. Figures obtained from the Ministry of Finance and the Central Bank of Lesotho indicate that the proportion of total government recurrent expenditure devoted to Health and education ranged between 32.8 percent in 1992/93 and 36.7 percent in 2000/2001. When compared with what is obtained in other developing countries of the

world, this is quite huge. Similarly, the Ministry of Planning figures show that the government had invested more in hiring health manpower (doctors, nurses and health workers) over the same period. For instance, in 1991, one health worker had to attend ten thousand people, but in 1996, this number reduced to eight thousand (Ministry of Planning, 1992-1996). There has also been a huge public investment in health infrastructure as indicated by hospital bed to population ratios, which posted an improving trend of 1:820 in 1991 to 1:700 in 1996 (Ministry of Planning, 1992-1996).

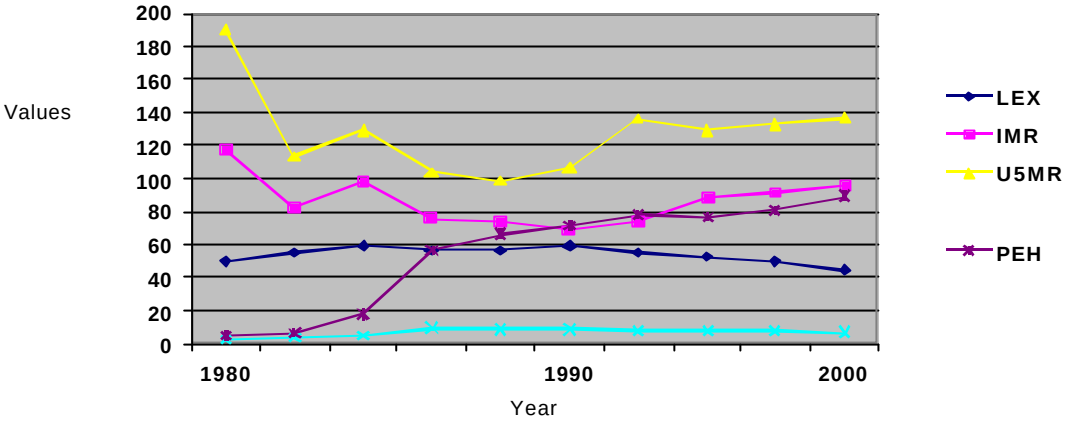
Given this impressive performance by the government of Lesotho in terms of public expenditure on health and other social services, it becomes important to examine the extent to which this spending may have impacted on the indicators of health status and healthy living such as morbidity and mortality within the country. These two indicators plus the life expectancy at birth constitute the three indicators, which we have adopted as the measure of health status for this research. This paper is distinguished by being the first, at least in Lesotho, to examine the potency of fiscal policy instrument on the lives of the citizens of Lesotho.

2. The Health Status

As previously mentioned, health status could be measured using three major indicators, the infant mortality rate, under five mortality rate and life expectancy at birth (Schultz, 1976, 1997, Hammer, 1995, Pritchett and Summers, 1996, Cornia and Mwabu, 1997, Filmer and Pritcett, 1999). Since Lesotho's independence, there has been improvement in health status of the Basotho people. However, in recent years some positive trends that prevailed in the past are now declining, for instance, life expectancy at birth increased from 49.5 years in 1970 to 53.2 and 57.6 years in 1980 and 1990 respectively, but in 2001 it was as low as 45 years. This decline in the life expectancy at birth is being attributed to the HIV/AIDS pandemic in the country. Again, maternal mortality also decreased from 350 in 1980 to 230 in 1990 but was as high as 282 by the year 2000. For infant mortality rate, the figure decreased from 117 in 1980 to 96 per one thousand live births in 1990 and was 98 in 2001. Furthermore, the under five-mortality rate which was 190 in 1980 fell to 129 in 1990, only to rise to 137 in 2001. These developments in the trend of the three indicators of health status were plotted against the government spending on health to pictorially reveal to some extent the effect of health spending on the wellness of the people of Lesotho. This is as shown in Figure 1.

Apart from the above changes, poverty related health conditions such as malnutrition tuberculosis and infant survival, which could also proxy health status, have also been on the increase. Sexually transmitted infections (STIs) remain one of the most common causes of morbidity and mortality, with HIV/AIDS also becoming a major threat with social and economic implications. Ever since the first case of AIDS was reported in 1986, there has been a tremendous increase in the reported cases, especially in the reproductive age category where most of the deaths are being claimed as a consequence of HIV/AIDS. Seemingly, there has been an increase also in the prevalence of diseases associated with urbanisation such as hypertension and diabetes, and problems associated with social disintegration such as alcoholism and trauma.

Figure 1
Public Health Spending and Indicators of
Health Status in Lesotho, 1980 - 2001



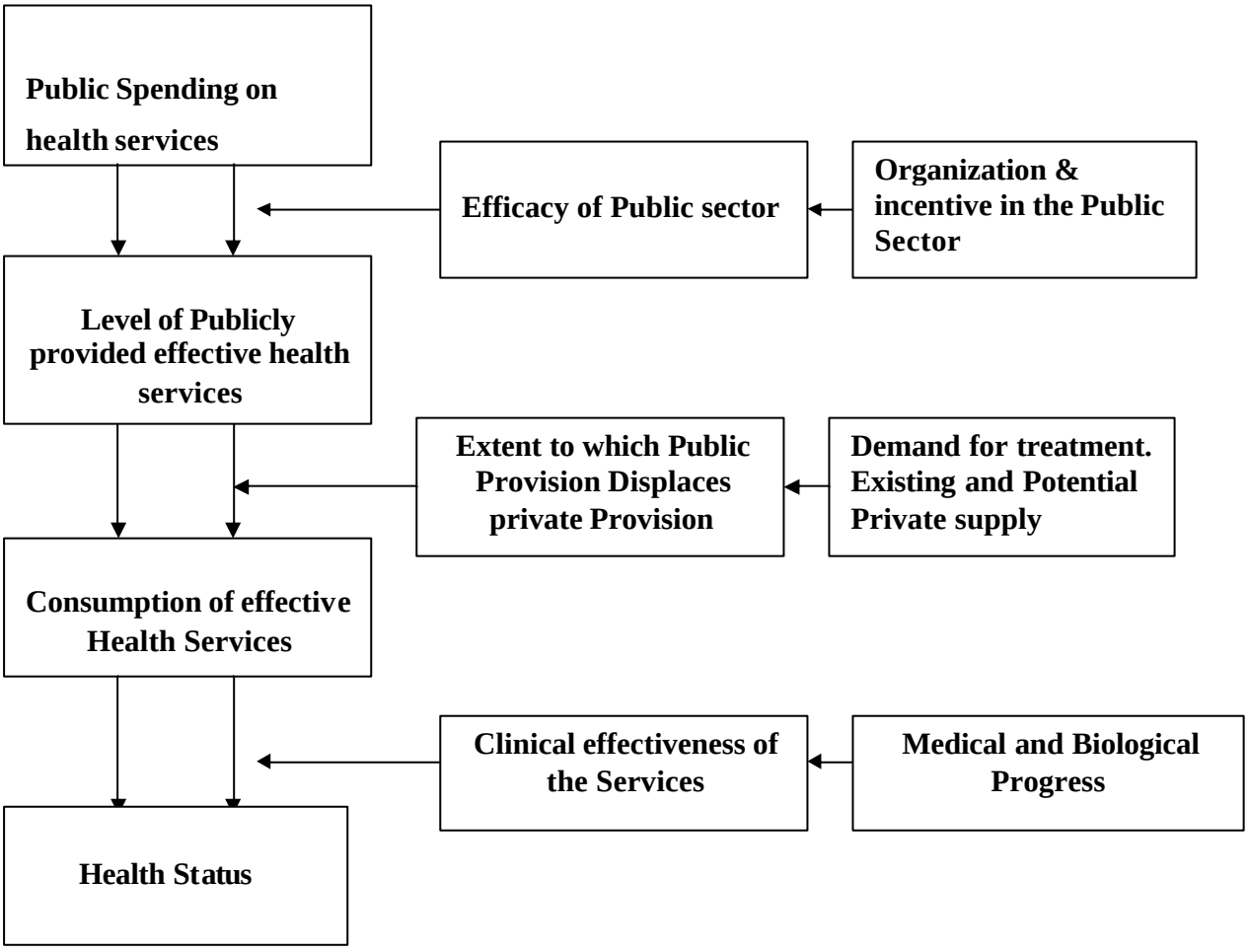
3. Public Spending and Health Status – Existing Literature

Unlike the theory of public expenditure growth, and the relationship between public expenditure growth and economic growth which had received significant attention in the literature since the Keynesian revolution, the theory and methodological construct on public expenditures and their distributional impact on household income and welfare may have eluded academicians and policy makers until very recently. In the words of Charles McClure (1972), "the methodology and theory of estimating benefit and expenditure incidence is largely underdeveloped". Similarly, according to Heller and Diamond (1990), positive theories of government spending and their distributional impact are in their infancy, and there is no commonly accepted model on which to base the regression analyses. Available literature on the subject, therefore, indicates that the emerging theories and empirical studies are either focused on Benefit Incidence Analysis (BIA) (Van de walle, 1995, Demery, 2000, Bidani and ravallion, 1997) or on the econometric in analysing

the effect of public expenditures on welfare (Mwabu et al, 1995, Filmer and Pritchett, 1999; Cremiex et al, 1999).

Models on how public spending influences health status are conceptualised in Figure 2. The idea as conveyed by the figure is that, all things being equal, public spending will impact on health status by lowering the effective price of health enhancing inputs. Within the framework conceptualised in this figure, the consensus of opinion seems to be that for public spending to improve health status, first, it must create effective health services, second, the existence of new public services has to change the total of effective health services consumed by the population, and finally, the additional services consumed have to be cost effective in improving health.

Figure 2: From Public Spending to Better Health[1].



[1] Adapted from Filmer and Pritchett (1999)

However, the results emanating from the empirical literature based on both BIA and econometric approaches present contradictory views about the relationship between public expenditure and health status. For instance, while it is a popular finding and belief (such as Musgrove 1996) that a higher average income contributes to a lower rate of mortality, some studies including Auster et al. (1969) and Cornia and Mwabu (1997) and Lopes (2002) revealed income to be a less important determinant of health status. Also Auster et al. (1969) found increased physician density to result in a higher rate of mortality! Moreover, there appeared to be a failure in relating health care expenditures and health status. For instance, Leu (1986) failed to identify a relationship between medical care expenditure and lower mortality, while Cremieux et al. (1999) and Cochrane et al. (1978) found high health spending to be associated with significantly low infant mortality rate. Contrary to this, Musgrove (1996) found health spending to have insignificant impact on health status. Nevertheless, he showed that much of this literature was done for developed countries.

Though for developing countries benefit incidence studies concentrated on few countries, there are also some contradictions. For instance, some studies (Hammer et al. 1992 and Sauma and Tiejos 1990) suggest that, the benefit incidence of spending on social services, such as education and health are pro-poor and benefit recipients are concentrated in urban areas. On the other hand, Castro Lear et al. (1997), Selowsky (1979), Meerman (1979), Van de Walle (1992), Meesook (1984), found government health care benefits to be significantly pro-rich.

From the empirical literature, it is observed that most of the results derive from studies conducted in developing countries of Central and South America. Studies based specifically on African countries are very limited. In this regard, there is very little to fall back on when it comes to comparing the results of the present research, which is based on data from Lesotho, with those of earlier studies in Africa.

4. Conceptual Framework And Methodology

Two major approaches could be adapted in investigating the relationship between public expenditure and health status. As earlier alluded to, these are the econometric approach as previously used by Filmer and Pritchett (1999), Cornia and Mwabu 1997 and Lopes (2002), and the Benefit Incidence approach as popularised in the literature by Van de Walle (1992, 1995). The initial idea was to contribute to the relatively scarce researches based on the BIA methodology in Lesotho. However, because of the nature of the available data and the inaccessibility to an up-to-date Lesotho Income and Expenditure Household Survey (IEHS), we could not adapt the BIA method. This necessitated the recourse to the use of econometric approach. In what follows therefore, we describe the econometric model that motivates the relationship between public spending and health status.

4.1 Econometric Approach

By nature health is a multidimensional concept. As a consequence, the term *health status* is problematic since its complete description would require measurements for every single health component. Towards investigating the determinants of health status, in particular the impact of health expenditure on health status, many scholars (Schultz 1976 and 1997, Hammer (1995), Pritchett and Summers 1996, Filmer and Pritchett 1999, Cornia and Mwabu 1997) used such indicators of health status as life expectancy at birth, infant mortality rate, under five mortality rate and maternal mortality rate. According to them, health status of the people is said to be good if the mortality rates are low and life expectancy is high. The results of these studies seem to indicate that good health outcomes are brought about by public health inputs and publicly financed medical care, all things being equal, as depicted in Figure 2

However, certain aspects of these indicators of health status are worth mentioning. According to Schultz (1997) and Pritchett and Summers (1996), mortality rates are better measures of health status than life expectancy since they are less prone to measurement errors and are exogenous to income. This is a fact that mitigates the endogeniety problem in the estimation of long-term mortality models. Notwithstanding the fact that mortality rates have gained longer history in the literature as measures of health status than life expectancy, for comparisons purposes,

equations using the three measures of health status are estimated for the purpose of this research.

According to Filmer and Pritchett (1999), a simple model of the determination of aggregate health status can be conceptualised as follows:

$$HealthStatus_i = \left(H_i / N_i \right)^a \times \left(NH_i / N_i \right)^b \times e^{A_i} \quad \text{.....(4.1)}$$

Where:

Health Status$_i$ = Infant mortality rate/ under five mortality rate

H_i = Public Expenditure in the Health Sector of Country i

NH_i = The Rest of GDP (including all non-public sector health spending)

N = population

A = Country Specific Factors (such as; access to save water, access to sanitation, female education, location of a country, income inequality etc)

Filmer and Pritchett (Ibid) posited that the transformation of equation *4.1* to logarithmic form could help achievement of two objectives. Firstly, it can capture non-linearity of the model as most studies that examined the relationship between public spending and health status found a non-linear relationship between mortality and income. Secondly, the transformation allows for comparisons with earlier findings since the regression results provide elasticities, which are assumed constant over time.

The model employed for the empirical analysis undertaken in this paper derives from the work of Filmer and Pritchett as described above. However, we have also estimated a third equation using life expectancy as a measure of health status and therefore as another dependent variable.

Model specification

$$\text{Health Status}_i = a_{0i} + a_{1i}GDPPC + a_{2i}PEH + a_{3i}NP + a_{4i}ILLR + a_{5i}IZM + m_i \quad \ldots\ldots\ldots\ldots (4.2)$$

Where;

Health Status$_i$ = Infant mortality/under five mortality rate/life expectancy at birth

GDPPC = GDP Per Capita measured in local currency unit (LCU)

PEH = Public expenditure on health as a percentage of GDP (LCU)

NP = Population per Physician

ILLR = Female illiteracy rate (% of female aged > 15 years)

IZM = Immunization for measles (% of children aged < 12 months)

U = Stochastic disturbance term to capture omitted variables

i = 1, 2, 3

Time series data for the period 1980-2001 were used for the analyses. However, data problems are now becoming an in-built characteristic of developing worlds of which Lesotho cannot be excluded. The problem is even worse in health related issues due to the confidentiality usually attached to such information. Therefore, there are a number of caveats with regard to the data quality. For instance, data are not available for every variable for every year, a problem that might have had some negative effects on the results of our analyses. Secondly, there are differences in how some variables are defined (for example, what elements health care expenditure actually include). Lastly, differences do exist in terms of definition of age and sex data, depending on the source being used. Given these problems, we have tried to limit ourselves to fewer sources for the necessary data.

5. Estimations And Empirical Results

This section presents results of the estimated equations and diagnostic tests. The estimated equation is equation 4.2 as specified in section 4, which has been estimated three times using life expectancy, infant mortality rate and under five mortality rate, each as a dependant variable[2]. However, empirical research has shown that most macroeconomic time series are trended, hence not stationary; such that constancy doctrine is not satisfied by the time series variables. Therefore any statistical inference based on estimation without verification that variables involved in the estimation are stationary may produce questionable and misleading results (known as spurious regression in econometrics). This is because, the normal properties of *t (t- statistic)*, R^2 *(coefficient of determination)* and *DW (Dubin Watson)* statistics may break down (Seddighi et. al. (2000) and Pindyck and Rubinfeld (1998) .

To address these issues of robustness and measurement errors therefore, diagnostic tests that investigate stationarity properties of variables were conducted. Firstly, unit root tests [Dickey-Fuller (DF) and Augmented Dickey-Fuller (ADF)] were undertaken and the results are as summarized in tables 1 and 2.

Table 1: The Dickey-Fuller regressions with an intercept but not a trend

Variable	DF	ADF	C.V*	Integration
LEX	-4.3045	-5.9584	-3.0401	I (1)
IMR	-3.1297	-4.4265	-3.0294	I (1)
U5MR	-3.3455	-3.3859	-3.0294	I (1)
GDPPC	-3.0981	-3.2902	-3.0294	I (1)
PEH	-5.8728	-4.1570	-3.0294	I (1)
NP	-3.0282	-3.7887	-3.0294	I (1)
IZM	-4.1639	-3.6710	-3.0199	I (0)
ILLR	-9.2182	-4.5228	-3.0199	I (0)

*95% critical value for the augmented Dickey-Fuller statistic

[2] Because of space limit, the paper presents results for one equation when Life expectancy is a dependent variable.

Table 2: The Dickey-Fuller regressions with an intercept and a linear trend

Variable	DF	ADF	C.V*	Integration
LEX	-4.95957	-5.9502	-3.6921	I (1)
IMR	-4.7488	-5.1531	-3.6746	I (1)
U5MR	-3.9156	-4.0096	-3.6746	I (1)
GDPPC	-3.7440	-3.9553	-3.6746	I (1)
PEH	-5.9818	-4.2664	-3.6746	I (1)
NP	-3.9999	-4.3800	-3.6746	I (1)
IZM	-5.8955	-4.2566	-3.6592	I (0)
ILLR	-8.2515	-4.1859	-3.6592	I (0)

*95% critical value for the augmented Dickey-Fuller statistic[3]

The results in tables 1 and 2 reveal that some variables are stationary (those integrated of order zero) while others are difference stationary (those integrated of order one). However, in the Monte Carlo simulations, the unit root tests often indicate that the series are non-stationary even if they are stationary hence the power of the unit root is found to be very low. This is because in detecting if the time series has a unit root, natural logarithms and first difference of the series are normally used. Taking first difference on the series means that long run behaviour of variables is lost because we would have eliminated a trend, which captures long run behaviour. To capture this important long run behaviour of variables we test for cointegration.

Cointegration of variables implies that there must be an adjustment process to prevent the deviation from long run equilibrium relationship from becoming larger. That is, there must be a mechanism that will ensure that deviation from equilibrium relationship becomes a temporary phenomenon.

[3] The decision rule is that, if the 95% critical value for the augmented Dickey-Fuller statistic (C.V) is less than both Dickey-Fuller (DF) and augmented Dickey-Fuller statistic (ADF), then the variables are stationary with indicated order of integration.

The most commonly used cointegration methods include two-step algorithm procedure as used by Engle and Granger (1987), and the maximum likelihood approach popularised in the literature by Johansen (1988).[4] The Johansen's Maximum Likelihood (LM) approach estimates and tests for the presence of multiple cointegrating vectors, it relies on the relationship between the rank of a matrix and the characteristic roots, which determine the number of cointegrating vectors and the speed of adjustment parameter. In the Johansen's approach, it is important to distinguish between deterministic terms like an intercept and trend that should enter the model as failure to include relevant deterministic components may not identify all cointegrating vectors (Hungnes 2004).

This procedure contains five possible combinations of deterministic components underlying the Vector autoregressive (VAR) model. These are:

Model 1: No intercepts or trends
Model 2: Restricted intercepts, no trends
Model 3: Unrestricted intercepts, no trends
Model 4: Unrestricted intercepts and restricted trends
Model 5: Unrestricted intercepts and unrestricted trends

However, in most empirical analyses, model 1 is normally ignored since it is believed that it is rarely suitable in economic application hence its inclusion is just for completeness[5]. Following this argument, only models 2-5 are considered in this paper. Given these models, Johansen (1992c) in Harries (1995) suggested the need to test the joint hypothesis of both the rank order and the deterministic components based on the Pantula principle. This principle involves estimation of the models and presentation of the results, as shown in table *3*, from the most restrictive alternative (Rank = 0, Model 1) to the least restrictive alternative (rank =n-1, Model 5).

[4] This study used Johansen's approach because of its advantage of simultaneously determining the short run adjustment parameters and the cointegrating vectors (Harries1995). Also, since we have many I(1) variables we suspected more than one cointegrating vectors in which case Engle – Granger approach becomes inappropriate.

[5] See Harries (1995) and Hjelm and Johansson (2002)

Table 3: Determination of cointegration rank and the model for the deterministic components based on Maximal Eigenvalue (l_{max}) and Trace statistics.

Null hypothesis	r	n-r	Model 2	Model 3	Model 4	Model 5
l_{max} **Test:**						
	0	4	36.72→	33.49	42.24	24.51
	1	3	21.46	18.26*	19.62	18.28
	2	2	12.08	7.26	17.65	17.37
	3	1	1.76	0.27	6.30	→2.19
Trace test:						
	0	4	72.02→	59.01	85.80	62.36
	1	3	35.30	25.52*	43.57	37.84
	2	2	13.84	7.26	23.95	19.57
	3	1	1.76	0.27	6.30	→2.19

* Denotes the first time the null hypothesis is not rejected.

→ Shows direction of movement

In table *3* above, *r* denotes the number of cointegrating vectors and n is the number of variables[6]. According to Harries (1995), the model selection criteria involves moving from the most restrictive model and at each stage compare the trace or maximal eigenvalue test statistic to its critical value and stop when the null hypothesis is not rejected for the first time. Applying the Pantula principle in the results in table 3, both the λ_{max} and the trace statistics show that the null hypothesis is for the first time not rejected for *r =1* in model 3 suggesting the existence of one cointegrating relationship at 5 per cent significance level.

Since there is only one cointegrating vector, we may not worry much about identification problem. We therefore assume that GDPPC, PEH and NP are weakly exogenous hence they could enter the model as independent variables.

[6] It is worth noting that, due to small sample size, in the cointegration tests above, the I(0) variables were not included since they have a tendency of increasing cointegration rank which may have implications in the results (Harries 1995:80).

Error Correction Model

To take into account the relationship of variables both in the short run and long run we employed the error correction mechanism (ECM)[7]. The ECM relates the short run changes in the dependent variable, LEX, as depicted in table 4, to the short run changes in the explanatory variables tying these changes to the long run effect through feedback mechanism. This enables exploitation of information on long run relationship between both stationary and non-stationary time series within a statistically consistent model.

Table 4: ECM for Variable LEX Estimated by OLS on Cointegrating VAR

Variable	Coefficient	Standard Error	T-ratio [prob]
dLEX 1	.72804	.12825	5.6766 [000]
dGDPPC	.1509E-4	.4418E-4	.34160 [.738]
dPEH	.17388	.0080516	2.1596 [.050]**
dNP	-.60781	.14631	-4.1543 [.001]*
ECM-1	-.18073	.57150	-3.1623 [.007]*
ADJ – R^2 = .84724	F (5, 14) = 18.5629(.000)		DW = 2.0592

Diagnostic Tests: Lagrange Multiplier Version

Lagrange Multiplier (LM) test of residual serial correlation	χ_1^2 = .18805 [.665]
Ramsey's RESET Test	χ_1^2 = .43181 [.511]
Normality Test	χ_2^2 =. 43981 [.803]
Heteroscedasticity Error Test	χ_1^2 = 1.8766 [.171]

Note: * Statistically significant at 1% level

** Statistically significant at 5% level

From table 4, the results reveal that about 85% of the variation in life expectancy is explained by the explanatory variables. The variables have the expected signs and are statistically significant except GDP per capita. Other diagnostic tests that characterize

[7] Used by J. D Sargan (1984) "Wages and Prices in the UK" and later popularized by Engle and Granger.

the overall significance of the model are all significant. For instance, the LM test of residuals accepts the null hypothesis of no serial correlation/autocorrelation. The tests also indicate that the error terms are normally distributed since we accepted the null hypothesis of normality of the errors. Thus the error terms are homoscedastic. With these features of the model we then proceed to interpret the regression results.

As mentioned earlier, cointegration analyses take into account the long run behaviour of variables. That long run relationship is captured by the error correction term (ECM-1). The coefficient of the ECM-1, –0.18073, represents the speed of adjustment between the short run and long run. This implies that roughly 18% of the disequilibria in period *t-1* on life expectancy are corrected in the current period.

It should be noted from table 4 that the gross domestic product per capita (GDPPC), public expenditure on health (PEH), and population per physician (NP) are presented in first difference form, hence their coefficients represent short run elasticities, which indicate the short run effects on life expectancy. The short run effect of GDPPC on life expectancy is positive but not significant. This may be because as stated in Lopes (2002), it normally takes a long time before the effects of income become manifestable on social outcome in many developing countries, of which Lesotho cannot be an exception. The short run effect of PEH on life expectancy is positive and significant, implying that, other things being equal, a one-percentage point increase in PEH increases life expectancy by about 0.17 percentage points. The coefficient of NP (-0.60781) is very significant and suggests that for every percentage increase in population per physician in Lesotho, life expectancy will decrease by about 0.6 percentage points.

6. CONCLUSION AND RECOMMENDATIONS

The study was carried out to examine the relationship between public spending and health status in Lesotho. Three measures or indicators of health status were used. These are life expectancy at birth (years), infant mortality rate (per 1000 live births) and under five-mortality rate (per 1000 live births). The econometric results presented in table 4 revealed that the signs of the coefficients of public expenditure on health and population per physician complied with a priori expectations and were statistically significant at conventional levels.

These findings are consistent with some of the earlier findings. However, while it is a popular belief and according to results from earlier studies (Musgrove 1996, Filmer and Pritchett 1999) that higher per capita income contributes to lower mortality and high life expectancy, per capita income, our results indicated that per capital income may not be a significant determinant of health status in Lesotho. These findings are in line with those of Lopes (2002), Auster et al. (1969) and, Cornia and Mwabu (1997) who found income per capita to be a less important determinant of health status. This may be because it normally takes a very long time for the effect of higher income to become manifested in terms of its effect on the health situation of the generality of the people of a country.

Given these results therefore, it could be concluded that despite the relationship between health status and many other possible determinants, the most important factors relevant to health status in Lesotho are public expenditure on health, and availability of physicians. This implies that, better health status seem to be associated with higher public health spending and more physicians. On the other hand, and given the performance of the income variable, one may also be tempted to say, “Money does not buy health”.

The key policy implications that can be drawn from this study for the government of Lesotho is to channel more resources in hiring/educating more physicians and increase the share of public spending on health. Apart from recommendations that derive directly from the findings of this research, we may also suggest policies aimed at combating health sector inequalities in both the supply side (for example the quality

and availability of health services) and the demand side (such as inequalities in knowledge and access). Again Ministry of Health and Social Welfare should work more closely with other ministries and take a wider view by, for example, exploring alternative delivery methods. Moreover, resources should be redirected to focus on cost-effective methods to prevent and treat diseases and conditions that disproportionately affect the poor; these pro-poor interventions could include targeted interventions for HIV/AIDS and tuberculosis. Or by directing funds, staff and supplies to areas where the poor live, work and learn.

7. Limitations of study and Suggestion for further Research

As mentioned before, due to the problems of data availability, we did not include some variables, such as urbanization, access to save drinking water and sanitation, which might be important determinants of health status as previously found in the literature. Therefore, we suggest that in future, these variables be given attention. Similarly, we may also want to suggest that for future studies similar to this, benefit incidence methodology may be used to examine the distributional impact of public spending on social services such as health and education.

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