

Investigating Fiscal Autonomies for Local Authorities in the Face of Decentralization towards Optimal Devolution and Participation in Public-Private Partnerships: A Case of Malawi

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Abstract: This empirical study examines the extent of fiscal autonomy for selected Local Authorities (LAs) after decentralization processes. Multiple regression model is formulated and data for variables of annual expenditures, annual locally generated revenues, annual capital funds and annual operational funds for selected LAs, spanning 2004/05 to 2020/21 financial years, are analyzed. Statistical tests of Stationarity; Heteroscedasticity; Homoscedasticity; Double Log Linear; Multi-collinearity; Autocorrelation; Model Structure Stability; and Model Differential Intercept Coefficient are run. Findings indicate that LAs are in the right path to attaining fiscal autonomies as substantiated by statistical soundness and coefficients of the outputs for the explanatory variables in the Classical Linear Regression Model. LAs can hasten and sustain these achievements (financial and spending autonomies) by either raising local tax revenues or intensifying revenue collection mechanisms and careful expenditure fiscal policies to get weaned from over-reliance on central financial transfers and over-expenditures, incase central government fails fulfilling fiscal obligations.

Keywords: LAs Expenditure, Local Tax Revenue, Capital/Operational Funds, Fiscal Autonomy, Decentralization.

JEL Classification Number: C10, C12, C51, D78, H72, O23.

1. Introduction

Most countries in Sub-Saharan Africa adopted decentralization of management to institutionalize democratic governance and foster efficiency and effectiveness in delivery of public services, a proxy to national development. McLure (1995a) links decentralization to triggers in collective achievements politically, administratively and socioeconomically.

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Kiggundu (2000) categorises enhanced accountability, transparency, balanced power distribution, and tangible democratic participation as political benefits from decentralization. Socioeconomically, decentralization is perceived to provide a vehicle that catalyzes autonomous distribution of incomes and wealth. Administratively, it eases workload for the non-devolved institutions. UNDP (2000) attests that decentralization brings government structures and local institutions closer to the general populace hence inducing them to participate, amass their resources for communal development, and channel their needs to respective agents, up to central systems, for provision of developments and social services to enable their realization of any social economic right(s). This compels the agent in service delivery to justify and explain its public resource management (PRM) decisions and actions with timely corrective measures once weakness is identified in the process. Similarly, the beneficiary of services has the right to hold the agent accountable on resource allocation and use for the realized human needs, (Divya - CBGA 2012: 9; ICESCR, 1966: 11; PWESCR, 2015; PSAM, 2019).

The concept of decentralization brings varying meanings, dimensions and understandings. According to Matlosa (2003), it entails power and resources are provided to stimulate effective coordination of devolved functions. It is, further, associated with championing attributes of delegation, privatization, deconcentration and devolution. Existing devolutions take either quasi-autonomous perspective whereby authority and power are transferred from central government to lower structures without its direct administrative control or deconcentrating one where some administrative authority and responsibilities, with limited power, are transferred to lower platforms within the central government.

In spite of wide adoption of decentralization concept, across countries and along the government systems, researchers have argued that there is no homogeneity in benefits accrued and cascaded downstream with local structures being characterized by exploitation, being agents of economic power dictating institutions leading to outcomes of decentralization being unexceptional as acknowledged in most countries within sub-Saharan Africa like Botswana (Sharma, 2000), and Zambia (Chikulo, 2000). They also stressed that in spite of overwhelming and multidimensional advocacy for decentralization across developing countries, structures constituting local government systems continue depending on central governments for financial resources, managerial and administrative capacity, policy formulation and operationalization. OECD (2004) and Fessha and Kirkby (2008) found more gaps in local government financial autonomy in developing countries because their subnational governments get a larger portion of their revenues from non-own income resources (through tax-sharing and grants from central governments).

In Malawian and sub-Saharan Africa context, no empirical study has been done to substantiate purported and intended fiscal autonomies as one of the outcomes from the

decentralization processes across countries and within the Ministries, Departments, Agencies (MDAs) and Local Authorities (LAs). Absence of frameworks, systematic approaches, techniques and tools to empirically analyze and document extents to which decentralization has achieved intended results of fiscal or financial autonomy and social economic impacts necessitated this study. It is envisaged that outcomes of this study shall act as a compass direction to gauge whether the decentralization process is moving in the right direction and towards the optimum goal of LAs getting weaned from overdependence on central government financial transfers.

1.1. Theories Governing Fiscal Decentralization and Autonomy

There are various theories underpinning the process of fiscal decentralization and autonomy like The Theories of Public Finance and Fiscal Federalism (Musgrave, 1959; Oates, 1972, 2005; Musgrave, 2000; Bird, 2010). The Theory of Public Finance suggests that the functions of government should be separated into three functions of macroeconomic stabilization, income redistribution, and resource allocation. The Fiscal Federalism theory comprises tax-assignment rules relating to principles that govern responsibilities of central and lower tiers of government with respect to macroeconomic stabilization, income redistribution, and resource allocation (Boadway *et al.*, 2000). The stabilization function is at the apex ensuring achievement of high employment and price stability hence handled by central government (through custom duties & VATs), followed by income re-distribution function (by central government, to a greater extent) that strives to achieve an equitable distribution of income and wealth from progressive individual/corporate income and wealth taxes (unstable revenue source) channeled through intergovernmental grants, while the resource allocation function (at local authority level) ensures that resources from stable sources of revenue are utilized efficiently. Martinez-Vazques and Smoke (2010) contend that policies of local authorities should be allowed to vary to mirror the preferences of respective populace so that decentralized taxing and spending powers are tailor made and responding to prioritized human needs. Doing so will increase resource use efficiencies as local authorities are closer to constituents and responsive to their real time needs (Bird 2010; Tanzi 2000). The notion of fiscal decentralization is further reflected by the degree of financial autonomy which is not solely a function of legal issues but also economic ends; freedom to choose the source, the amount and the allocation of resources between the multiple financial categories and sources thus either getting provided with or acquiring sufficient financial resources to determine freedom regarding local authority's level of expenditure and competencies in exercising decentralization principles.

The theory, conceptually, uncovers dividing lines for government responsibilities that enables streamlining the aforementioned three functions to befitting levels of government,

thus central government, second-tier governments, and local authorities (Oates, 1968 and 1972; Musgrave, 1983; and Bird, 1993). Musgrave and Musgrave (1973); Martinez-Vazquez *et al.* (2006), and Oates (2005) further assert that devolving political, fiscal and administrative powers to lower platforms of local government systems can increase the efficiency and responsiveness of governments, ‘subsidiary’ principle, as long as consumption benefits are linked to costs of service provision through property taxes, business licenses, market fees, user service charges and other local taxes.

Much as The Theories of Public Finance and Fiscal Federalism; and Concept of Fiscal Decentralization and Local Government Financial Autonomy dominate public finance literature and normative regulations, there are still gaps in operational concepts worthy employing in empirical measurements to determine achievements in financial autonomy (Meloche *et al.*, 2004; and Stegarescu, 2005). The cited researchers stressed the need to consider both local authorities’ income sources and expenditure attributes in establishing financial autonomies, a proxy for fiscal decentralization, thus after noting that incomes and expenditures of local governments were being studied independent of each other with no cutoff lines or standardized indicators to ascertain that certain countries or LAs have attained optimal levels of fiscal decentralization and autonomy in the context of myriad levels of socioeconomic developments and political maturity. Besides, such empirical studies that are done exclusive of one another fall short of supporting the aforementioned theories and concepts, hence supporting the need for this study so that consistent methodologies, techniques and tools; and cutoff points for fiscal autonomies are established.

The major purpose of this study will be to examine robustness of institutional frameworks that govern decentralization with regards to mobilizing financial resources, assigning expenditure responsibilities and budgetary autonomy at local authority level as part of Local Government Decentralized System in The Republic of Malawi. The study objectives are: (a). To establish the extent to which revenues mobilized at Local Authority contribute to fiscal or financial autonomy at that level, (b). To examine adequacies in expenditure assignments, from central government, relative to ideal expenditure responsibilities in a decentralized system of intergovernmental financial transfers, and (c). To formulate and validate an Estimation Model linking LAs’ expenditures to funding sources supporting the budgets at that level of devolution.

The rest of this article, which is based on desk and field research (interaction with key institutional personnel), is arranged that section 2 gives background of decentralization in Malawi and a summary of literature review, section 3 hypothesis, section 4 conceptualizes the empirical research methodology and formulates empirical models for assessing the fiscal autonomy of local authorities, section 5 retrieves secondary data from institutional

databases then encoding for analysis and empirical findings portraying its applicability in assessing financial autonomies for two LAs in Malawi, section 6 outlines implications on Theories and Practice.

2. Literature Survey

2.1. Decentralization and Fiscal Autonomy in Malawi

The decentralization and fiscal autonomy in Malawi were introduced by multi-party democracy in the year 1994 by shifting from highly centralized system to decentralizing political and administrative authority to local authorities, to attain strategy of poverty reduction. This was followed by processes from Malawi Government Development Strategy of 1995; National Decentralization Policy of 1998; and Local Government Act, No. 42 of 1998/1999. Implementation of decentralization strategy was incremental with phase I (2000-2004) unfolded by the National Decentralization Program (NDP-I). UNDP (2000) states that lack of decentralization (decision making) and devolution (financial autonomy) retarded performance of administrative structures at lower levels. This bred policy of pursuing piecemeal decentralization focuses the program on pilot districts (1993-1996) to address institutional weaknesses, enhance citizen participation in decision-making, and improve public service delivery. NDP-I focused on institutional development and capacity building, legal reforms, fiscal decentralization, accounting and financial management, sector devolution, inducing democratic culture, and instituting a sustainable local development planning and financing mechanisms at local authority level (Government of Malawi, 2000).

Phase II or NDP-II (2005-2010) benchmarked on lessons and challenges identified in the preceding phase besides furthering and sustaining the initiated areas of focus, thus to attain functional local government structures as enshrined in the Malawi Constitution and associated legal documents. This study intends to isolate fiscal decentralization, through financial autonomy as a precursor, by empirically establishing how efforts constituting ‘decentralization’ have contributed to fiscal/financial autonomy at local authority level.

2.2. Generalization, Comparison and Critique of Literature.

Satola et al. (2019) stresses that financial autonomy (FA) is the basic attribute assessed in the analysis of financial stability of local authorities (LAs) with a strong backing from financial perspective, justifying the existence of local governments (LGs), and a precursor of stable local development, public-private partnerships (PPPs) inclusive. Luczak et al. (2018b) corroborates further that sustainable financial resources, at LAs, are the foundation of social and economic development in rural areas. Much as various studies have been done in assessing levels of FAs for different LAs, there have been variations in the sets of indicators used by different researchers in their analyses for the same scenario

at hand. Beer-Toth (2009) used composite indicator of fiscal autonomy, Kozera et al. (2017) used indicator of financial self-sufficiency, Satola et al. (2019) used fiscal wealth indicator, while Glowicka-Woloszyn and Satola (2018) used fiscal autonomy index for the similar phenomena. The results obtained were either conflicting or incomparable pointing to the fact that no standard or integrated indicator was objective enough to portray FAs of the then analyzed rural municipalities. Besides, there have been outcries for methods that can be employed to track improvement in levels of FAs for rural areas, worth spurring local economic and social development. Diversity in theories underpinning financial autonomy (FA) resounds the complexity and multidimensional attributes when it comes to assessing FA of LAs hence the need for careful identification of endogenous variables for the model that are robust enough to surpass influence of exogenous factors when it comes to determining FA levels for LAs. Standar and Kozera (2019) recommended for analysis of FA variables on the FA levels of the Local Government Units, as a significant research topic from social and economic point of view.

Salm (2014) portrays that, scientifically, FA for LAs relies on the revenues credited and prudent expenditure management (including entrusted transfers from central government), thus supporting fiscal policy theories and respective indicators. Attributes of prudent local tax system are anchored by decentralization theory while upholding fiscal autonomy and responding to the needs of local constituents. There has been research bias towards revenue autonomy when it comes to assessing FA of LAs, with little consideration of expenditure autonomy. Satola et al. (2019) echoes the need to take on board all possible revenue sources as they comprise FA drivers, since revenue generation is highly linked to financial autonomy. Thus level of own revenues has an influence in determining FA of LAs. However, execution of initiatives in response to the needs of local people also depends on transfers and grants from central government. Jakovljevic et al. (2019) and Hajilou et al. (2018) confirmed the need for a sustainable LA funding system so that financial resources credited to LAs relate to the expenditures incurred in executing the approved responsibilities. The findings revealed that such funding system depends on the ideal degree and scope of fiscal decentralization depicted by prudent management of public resources.

In summary, the literature has shown heterogeneity in the contexts of FA studies proposing that the nature of the scenario (autonomies of spending, revenue and budget) is multidimensional. Researchers have also corroborated that there is lack of comparative assessment of FAs for various countries. By design and according to theories (use of regional internal potential, economic theories of self-oriented and independent development), LAs might be expected to be more autonomous and optimize their internal potentials. Furthermore, there has been no empirical study on FAs of LAs in Malawi since

the advent of decentralization hence this attempt to explore the extent of financial autonomy and capabilities of LAs in Malawi. In this case, revenue autonomy is assessed in presence of other financial sources to, empirically, establish LA own-revenue’s extent of contribution to expenditures.

3. The Estimation Model and Associated Hypotheses

As per Stegarescu (2005) and Akai et al. (2007), extent of fiscal decentralization has mostly been determined by calculating the local government proportion of total government expenditures and consolidated government revenue. OECD (1999, 2001, and 2002) termed the measures as crude and misleading while giving way for more valid international comparisons of fiscal autonomies in public sector decentralization set up. Different researchers utilized the OECD analytical framework to portray revenue side of decentralization. Guengat and Uhaldeborde (2003); and Gilbert (1999) outline that autonomy in financial terms can be defined by combining elements of local expenditure autonomy, local revenues autonomy and budget autonomy. The aforementioned autonomies, if modelled, would determine extent of the right for local authorities to attain a statistically sound, dynamic and predictable budget while discharging financial responsibilities. Thus for Local Authorities in Malawi, this study builds on earlier studies and comes up with a Classical Linear Regression Model (CLRM) taking on board expenditure as dependent variable and explanatory variables of local revenues and expenditure responsibilities from central government (capital funds and operational funds) that constitute fiscally decentralized budget. Theoretically, possible outcomes regarding expenditure and financing sources are that LA own local revenues have a higher influence on expenditures (revenue autonomy); entrusted revenues (transfers from central government) have a higher influence on expenditures (spending autonomy); and the fiscal synchronization proposed by Musgrave (1966) and Meltzer and Richards (1981).

$$Exp_t = \alpha_0 + \alpha_1 LR_t + \alpha_2 CF_t + \alpha_3 OF_t + \xi_t \tag{1}$$

Where: Exp_t = Local Authority expenditure at time t; LR_t = Credited Local Revenue(s) at time t; CF_t = Credited Capital Fund(s) at time t; OF_t = Credited Operational Fund(s) at time t; α_t = Coefficients; t = Time, years in this study: 1, 2, ~.n; and ξ_t = white noise error term at time t.

H_0 : The coefficient for a variable under consideration is equal to zero (respective sources of funds have no significant contributions to LA expenditures).

The null hypothesis would be accepted if values of respective coefficients are statistically and significantly not different from zero.

As per Maddala (2008) and Gujarati (2006) it is a prerequisite that the formulated Classical Linear Regression Model (CLRM) meets robustness and abides by Ordinary Least Square (OLS) assumptions by undergoing the entire required statistical tests of unit root (time series data stationarity test) for variables, heteroscedasticity, model re-specification, multicollinearity, autocorrelation, data structure stability (chow test) and the possibility of introducing differential intercept coefficient to confirm the final model as an output. E-Views software is used to perform the analyses.

4. Empirical Results and Model Estimations

Longitudinal Annual (aggregated) and Time Series Financial Data for selected LAs, as per model variables’ codes, is used. This data was from 2005 to 2021 financial years. This represents a sample size of 32 observations. The source for the raw data is annual financial reports from the Local Authorities in The Republic of Malawi. Summaries of results are presented as follows: -

4.1. Test for Data Series Stationarity (Unit Root Test)- Models and Testing

The respective stationarity test models for the variable time series under consideration in this study (Exp, LR, CF, and OF) are as below:

$$\Delta Exp_t = A_1 + A_2 t + A_3 Exp_{t-1} + \mu_t \tag{2}$$

$$\Delta LR_t = \alpha_1 + \alpha_2 t + \alpha_3 LR_{t-1} + \varepsilon_t \tag{3}$$

$$\Delta CF_t = \beta_1 + \beta_2 t + \beta_3 CF_{t-1} + \xi_t \tag{4}$$

$$\Delta OF_t = \phi_1 + \phi_2 t + \phi_3 OF_{t-1} + \psi_t \tag{5}$$

Where: Δ = First – difference operator; t = Trend variable, 1, 2, …,n (up to 32 in this study); t-1= One – period lagged value of variable under consideration. A_3 , α_3 , β_3 and ϕ_3 = coefficients of variables at one – period lag. μ_t , ε_t , ξ_t and ψ_t = white noise error terms at time t.

H_0 : Coefficient for one – period lag is zero, for a variable under consideration. Thus, if the underlying time series data is nonstationary the hypothesis be rejected if the computed value of estimated coefficient is greater than the critical values. Unit Root test (Augmented Dickey-Fuller/DF Test) as per Dickey and Fuller (1979 and 1981) was performed to ascertain the order of integration of each variable, investigating possibility of non-stationarity of the variables and results are in Table 1 below.

Results of data series for the variables are stationary. ADF test at levels show the null hypothesis is rejected (data is stationary) for Exp at 5% and 10%; LR not rejected; CF at 1%, 5% and 10% and OF at 1%, 5% and 10% levels of significance. ADF at first

difference shows stationarity for all variables at all level of significance. Generally, all variables are stationary at both levels and first difference except LR, only stationary at first difference. Therefore, the co-integration test was not run and the error correction model (ECM) is not used in this study.

Table 1: Unit Root Test Results

Series Code	ADF Value	Prob.	Reject Null Hypothesis	ADF-1 Value	Prob.	Reject Null Hypothesis
Exp	-2.954721	0.0464	** and ***	-7.722077	0.0000	* ** and ***
LR	1.477296	0.9990		-14.06076	0.0000	* ** and ***
CF	-4.202558	0.0014	* ** and ***	-5.678822	0.0000	* ** and ***
OF	-5.057494	0.0001	* ** and ***	-6.257252	0.0000	* ** and ***

Note: 1% Critical Value: -3.592462; 5% Critical Value: -2.931404; 10% Critical Value: -2.603944. *, ** and *** denote significance at 1%, 5% and 10% respectively.

4.2. Linear Model Estimation

All the explanatory variables are statistically significant and have a positive relationship with the dependent variable (Exp), a unit increase in each explanatory variable trigger respective proportional increase in LA expenditure as per respective coefficients. Though expenditures in a self-sustained and resource autonomous LA are dependent on revenues raised, the scenario as per above results is contrary, implying the revenues raised cannot sustain the expenditures. This justifies for the inclusion of grants and loans in the model.

$$Exp_i = 2041.638 + 0.441267 LR_i + 0.794738 CF_i + 1.144888 OF_i$$

se	= (613.4580)	(0.108967)	(0.065657)	(0.094668)
t	= (3.328082)	(5.884953)	(12.10445)	(12.15912)
R ²	= 0.868893	D – W stat. = 1.972251		

4.3. Heteroscedasticity Test

White Heteroskedasticity (cross terms) test on the estimated linear model was run with the **Null Hypothesis (H₀)**: The estimated model does not have a problem of heteroscedasticity (opposite of homoscedasticity: constant data mean and variance over time). Summary of analysis results are presented in Table 2

Table 2: Linear Model Heteroscedasticity Test Summary

F-statistic	12.04826	Probability	0.000000
Obs*R-squared	33.49691	Probability	0.000109

From the summary above, though $F = 12.04826 > F(9, 32) > 2.86$ and $\chi^2 = 33.4969 > \chi^2(9, 32) = 16.919$, the respective probabilities of obtaining these numbers are zero $(0.00) < 0.05$, the critical level of significance. The null hypothesis (model does not have problem of heteroscedasticity) is rejected hence there is evidence that the model has the problem of heteroscedasticity.

4.4. Heteroscedasticity Problem Solving (Variance Stabilizing/ Transformation/ Obtaining Homoscedastic Mean and Variance) and Model Re-specification

Due to heteroscedasticity, the model (Eq.1) was re-specified from linear in variance (LIV) to log-log (double log or log linear) form with the aim of removing the identified problem. The transformed model and OLS Analysis results are presented below: -

$$\ln Exp_t = \alpha_0 + \alpha_1 \ln LR_t + \alpha_2 \ln CF_t + \alpha_3 \ln OF_t + \xi_t \tag{6}$$

$$\ln Exp_t = 2.79735 + 0.031628 \ln LR_t + 0.086431 \ln CF_t + 0.648585 \ln OF_t$$

se	= (1.010079)	(0.00842)	(0.01572)	(0.114433)
t	= (2.769438)	(3.756278)	(5.498117)	(5.667804)
R ²	= 0.584988	D – W stat. = 1.108027		

From results, a percentage increase in each of the explanatory variables trigger respective (coefficient based) positive percentage increase in the dependent variable, LA expenditure (lnExp) at a specific time, t. Coefficients for all explanatory variables are statistically significant implying percentage adjustments in each independent variable have significant percentage change on the dependent variable, (lnExp_t).

4.5. Heteroscedasticity Test Results for Double Log/Log – Linear Model

From the results in Table 3, both F-statistic and Chi-square values are less than the respective critical values ($F=1.089066 < 2.86$; $\chi^2=9.845992 < 16.919$) at 5% level of significance and the respective probabilities of obtaining these values are well above the critical percentage of 5% hence accepting the H_0 : The model does not have problem of heteroscedasticity. Therefore, the re-specified model can proceed to the next stage of testing.

Table 3: Double Log Model Heteroscedasticity Test Summary

F-statistic	1.089066	Probability	0.396054
Obs*R-squared	9.845992	Probability	0.363096

4.6. Multicollinearity Test Results for the Double Log Model

Results for Estimated Model (lnExp C lnLR lnCF lnOF $R^2_{\ln Exp} = 0.584988$) are provided in Table 4.

Table 4: Multicollinearity Test Results Summary for Double – log Model.

Regressor	Equation Specification	R_i^2	$R_i^2 > R_{lnExp}^2$
lnOF	lnOF C lnCF lnLR	0.171882	Yes
lnCF	lnCF C lnOF lnLR	0.162177	Yes
lnLR	lnLR C lnCF lnOF	0.023433	Yes

From outcomes, none of the regressors, if regressed on other explanatory variables, gives $R_i^2 > R_{lnExp}^2$ (0.584988) hence there is no problem of multicollinearity in the double-log model.

4.7. Autocorrelation Test Results for the Double Log Model

The model was subjected to first (1st) order [AR (1)] autocorrelation test and summary of results are presented below.

Estimation Command: LNExp C LNLR LNCF LNOF AR(1)
 Estimation Equation: LNExp = C(1) + C(2)*LNLR + C(3)*LNCF + C(4)*LNOF + [AR(1)=C(5)]

Durbin-Watson stat	2.092312	Prob(F-statistic)	0.000000
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Equation with Substituted Coefficients:

$$LNExp = 3.863+0.546*LNOF+0.058*LNCF+0.0296*LNLR + [AR(1)=0.5206]$$

$$\ln Exp_t = 3.8632+0.5462 \ln OF_t + 0.0576 \ln CF_t + 0.0296 \ln LR_t + [AR(1)=0.52064]$$

It is noted that the d-statistics is around 2 which is a zone of neither positive nor negative autocorrelation. The prob (F-statistics) 0.0000 < 0.05 (critical level of significance) for the null hypothesis implies the model does not have autocorrelation. Therefore, the H_0 : The model does not have problem of autocorrelation is accepted since there is no evidence to prove so.

4.8. Data Structure Stability Test Results for the Model

Chow Test was run to find if there is stability of coefficients for the longitudinal and time series data set over the time period under consideration. The period under consideration in this study, in Malawi context, was characterized by Local Authorities (LA) indirectly implementing policies of championing macroeconomic stability (towards stable currency exchange rates, reduced inflation rate to single digits), remarkable GDP growth rates, stable national consumer price index (NCPI) and others. The assumption is that, basing on economic indicators in Malawi, after the change in the political reign (in 2004) efforts in

stabilizing economy at all levels reached a point where stability in variables for the model under consideration got reached. Chow-Test results are in Table 5:

Table 5: Chow-Test Results for the Double-log Model

Chow Breakpoint Test: 2008M01			
F-statistic	2.408547	Probability	0.057374
Log likelihood ratio	13.37748	Probability	0.020087

The data structure stability test shows that from 2005 there was prevalence of data instability in variables under consideration in the model until 2008 as evidenced by none of the points in the specified duration yielding prob.(F-statistic) of more than 0.05 (critical level of significance). This might be due to the long - run efforts in trying to stabilize the economy. 2008 then acts as the structure stability breakpoint for the data sets for variables under consideration hence having data categories of 2005 to 2007 and 2008 to 2021.

4.9. Models for Split Data and Results

The two sets of split Data (Instability and Stability) were ran into the model to establish respective contribution of independent variables to the dependent one and the results are as below.

(a) Model for data spanning 2004/05 to 2007/08

$$\ln Exp_i = 2.830815 + 0.508043 \ln OF_i + 0.227922 \ln CF_i + 0.048674 \ln LR_i$$

se = (1.644979) (0.189126) (0.034746) (0.011186)
 t = (1.720882) (2.686273) (6.559616) (4.351268)
 $R^2 = 0.699165$ D – W stat. = 1.979133

(b) Model for data spanning 2008/09 to 2020/21

$$\ln Exp_i = 2.697773 + 0.544165 \ln OF_i + 0.193585 \ln CF_i + 0.058892 \ln LR_i$$

Se = (1.598606) (0.178163) (0.034279) (0.01042)
 t = (1.687578) (3.054315) (5.647311) (5.651718)
 $R^2 = 0.723695$ D – W stat. = 1.9924

Coefficients for Independent variables are statistically significant with the intuitive implying that a unit percentage change in each variable in the model under consideration constitutes to positive percentage change in the dependent variable.

4.10. Testing Significance of Splitting Data and Results

This test was undertaken to find out if it is statistically significant to split the data into two categories as per the previous split models. A dummy variable (differential intercept

coefficient) was introduced to see if one data set (instability) category is statistically different from the referential (base) data category. The model that takes care of the dummy variable is as presented below whereby $D = 1$ for expenditure before 2007/08 and 0 if it is the expenditure after 2007/08.

$$\ln Exp_i = \alpha_0 + \alpha_1 D_i + \alpha_2 \ln OF_i + \alpha_3 \ln CF_i + \alpha_4 \ln LR_i + \xi_i \tag{7}$$

$$D_i = \begin{cases} 1 & \text{if exp enditure before 2007/08} \\ 0 & \text{if exp enditure after 2007/08} \end{cases}$$

The null hypothesis is $H_0: D_i = 0$. The analysis results for the model that takes care of the dummy variable are as presented below:

$$\ln Exp_i = 4.956292 - 0.153792 D_i + 0.409428 \ln OF_i + 0.081706 \ln CF_i + 0.029124 \ln LR_i$$

Se	= (1.665829)	(0.09541)	(0.186025)	(0.015691)	(0.008401)
t	= (2.975271)	(-1.611903)	(2.200931)	(5.207055)	(3.466587)
R^2	= 0.61091	d – statistics = 1.131758			

From the above results, the mean LA expenditure for the period before 2007/08 is lower than that of after, as depicted by negative differential coefficient (negated coefficient for the dummy variable, D_i). Moreover, the coefficient for the dummy variable does not have significant impact on the dependent variable (lnExp) hence the overall (over the whole data set) double – log model stands out to be the reliable model, with stable coefficients.

4.11. Final Estimation Model for Projecting Inflow Amounts into the Annual Budget

After all the tests conducted for the model to qualify, the following (re-specified) model befits the data under model specification and projection of amounts from respective funding sources to comprise the Annual Budget at Local Authority levels.

$$\ln Exp_i = 2.79735 + 0.648585 \ln OF_i + 0.086431 \ln CF_i + 0.031628 \ln LR_i$$

se	= (1.010079)	(0.114433)	(0.01572)	(0.00842)
t	= (2.769438)	(5.667804)	(5.498117)	(3.756278)
R^2	= 0.584988	D–W stat. = 1.108027		

5. Summary and Conclusions

This study examined fiscal/financial autonomies of Local Authorities (LAs) in the Republic of Malawi following processes of decentralization. Classical Linear Regression (log – linear/double log) Model was formulated and validated using longitudinal and time series financial data for the selected LAs. The model took on board Expenditure as dependent variable; independent variables like transfers from central government taking

the form of operational funds and capital funds; and locally generated revenues at local authority level. E-Views statistical package was used to run the analyses. The Double-Log Model results support the earlier suggestion that local authorities are making strides towards achieving financial/fiscal autonomies as evidenced by unit percentage changes in all explanatory variables, Local Revenues inclusive, triggering significant respective positive percentage changes in LAs' expenditures.

There are several policy implications basing on coefficients or elasticities of local revenues and capital funds, which are less than 0.1. These elasticities portray that the selected Local Authorities can be financing a higher proportion of the budget by intensifying collection of local tax revenues, since it is the only budget funding source that can be controlled by the LAs unlike transfers (grants, operational funds, capital funds) from central government. This and abiding by spending autonomies may, in the long-run, reduce over-dependency on transfers from central governments and over-expenditure syndrome. This will, eventually, enable LAs attain optimal devolution and attract private sector to participate in Public-Private Partnerships, at that level whenever calls are made.

The study had limitations like cost implications, number of participating local authorities and soliciting time series financial data. Further research studies are recommended on broader sample size, long span time series and longitudinal data, and inclusion of additional variables in measuring fiscal and financial autonomies for local authorities.

References

- Akai, N., Nishimura, Y., and M. Sakata, 2007, Complementary, fiscal decentralization, and economic growth, *Economics of Governance*, 8, 339-362.
- Beer-Toth, Krisztina, 2009, *Local Financial Autonomy in Theory and Practice: Doctoral dissertation*, Universite de Fribourg, Fribourg, Switzerland.
- Bird, Richard M., 1993, *Aspects of Federal Finance: A Comparative Perspective, A Reforma Fiscal on Brasil*, The proceedings of the International Symposium on Fiscal Reform, Sao Paulo.
- Bird, R., 2010, *Subnational Taxation in Developing Countries: A Review of the Literature*, Policy Research Working Paper, No. 5450, Washington D.C., World Bank.
- Boadway, R., Roberts, S. and Shah, A., 2000, *Fiscal Federalism Dimensions of Tax Reform in Developing Countries*. Chap. 9, . 171-200, in Perry, Whalley & McMahon (eds) *Fiscal Reform and Structural Change in Developing Countries*, Vol. 1, Basingstoke, McMillian Press.

Chikulo, B. C., 2000, Decentralization for Good Governance and Development: The Zambian Experience, Regional Development Dialogue, No.21/1, 26-48.

Derichs, A. and C. Einfeldt, 2006, Fiscal Decentralization and Intergovernmental Fiscal relations in South Africa, Strengthening Local Governance Programme, Eschborn: GTZ.

Dickey, D.A. and W.A. Fuller, 1979, Distribution of the Estimators for Autoregressive Time Series with a Unit Root, Journal of the American Statistical Association, 37, 1057-1072.

Dickey, D.A. and W.A. Fuller, 1981, Likelihood Ratio Statistics for Autoregressive Time Series with a Unit Root, Econometrica, 49, 427-432.

Divya Singh Kohli, CBGA, 2012, Manual on Social Accountability–Concepts & Tools, 9.

Głowicka-Woloszyn, R. and Satola, L., 2018, Financial self-sufficiency of rural communes in Poland, International Scientific Days, 1493-1495.

Government of Malawi, 1994, Constitution of the Republic of Malawi, Lilongwe, Government Print.

Government of Malawi, 2000, National Decentralization Policy, Lilongwe, Government Print.

Government of Malawi, 1995, Malawi District Development Planning Manual, Lilongwe. Government Print.

Gujarati, D.N., 2006, Essentials of Econometrics, Third Edition, United States Military Academy, West Point, McGraw-Hill international Edition.

Hajilou, M., Mohammad M., Sohrab, A., and P. Mehdi, 2018, Financial Sustainability of Municipalities and Local Governments in Small-Sized Cities; A Case of Shabestar Municipality, Lex Localis, 16, 77-106.

International Covenant for Economic, Social and Cultural Rights (ICESCR), 1966, 11.

Jakovljevic, M., Melitta, J. Gerdtham, U. David, M. Seiritsu, O., E. Varavikova, J. Merrick, R. Adany, A. Okunade, and T.E. Getzen, 2019, Comparative Financing Analysis and Political Economy of non-communicable diseases. Journal of Medical Economics, 22, 722-727.

Kiggundu, M.N., 2000, Decentralization, in R. Mukandala, African Public Administration, Harare: African Association of Political Science (AAPS), 88-117.

Kozera, A., Aleksandra L. and F. Wysocki, 2017, The Application of Classical and Positional TOPSIS Methods to Assessment of Financial Self-sufficiency Levels in Local Government Units, In *Data Science*, Cham: Springer, .273-284.

Kurti T., 2014, Financial System and Local government in European countries, *European scientific Journal*, 1, 543-547.

Luczak, A., Konzera A., and Bacci S., 2018b, The application of Taxonomic methods and Ordered Logit Model in the Assessment of Financial self-sufficiency of Local Administrative Units: Economic science for Rural Development Conference Proceedings, Paper No.490, Jelgava, Latvia, May 9-11.

Maddala, G.S., 2008, *Introduction to Econometrics*, Third Edition, Ohio State University, John Wiley & Sons. LTD.

Malawi Government, 1998, *Malawi Decentralization Policy*, Lilongwe, Government Print.

Martinez-Vazquez J., McLure C. and F. Vaillancourt, 2006, Revenues and expenditures in an intergovernmental framework, Chap. 2, . 15-34, in Bird R.M. and F. Vaillancourt (eds.) *Perspectives on Fiscal Federalism*, Washington, World Bank Institute.

Martinez-Vazques, J. and P. Smoke, 2010a, Introduction, Chap. 1, 11-21 in *Local government finance: The challenges of the 21st century*. Second global Report on Decentralization and Local Democracy, Barcelona, United Cities and Local governments.

Martinez-Vazques, J. and P. Smoke, 2010b, Conclusion, Chap. 10, 333-354 in *Local Government Finance: The Challenges of the 21st Century*. Second global Report on Decentralization and Local Democracy. Barcelona: United Cities and Local governments.

Matlosa, Khabele, 2003, Political Culture and Democratic Governance in Southern Africa, *African Journal of Political Science*, 8/1, 102-110.

McLure, Charles E., Jnr., 1995, Intergovernmental Fiscal Relations, in Elena Folkerts-Landau, editor, *South Africa: Selected Financial Issues: Opportunities and Challenges Facing the New Government of South Africa*, Washington: World Bank, . 93-112a.

Meloche, J.-P., Vaillancourt F. and Y. Serdar, 2004, Decentralization or Fiscal Autonomy? What Does Really Matter? Effects on Growth and Public Sector Size in European Transition Countries, *World Bank Policy Research Working Paper No. 3254*, Washington, DC: World Bank.

Meltzer A.H. and S.F. Richard, 1981, A rational theory of the size of the Government, *Journal of Political Economy*, 89, 914-927.

Musgrave, R.A., 1959, *The Theory of Public Finance*, New York, McGraw Hill.

Musgrave, R.A., 1966, *Essays in Fiscal Federalism*, Paper No. XVI, 301. Washington D.C.: Brookings Institution.

Musgrave, R.A. and Musgrave, P.B., 1973, *Public Finance in Theory and Practice*, Tokyo, McGraw-Hill Kogakusha.

Musgrave, R.A., 1983, Who Should Tax, Where, and What? in Charles E. McLure, Jr., editor, *Tax Assignment in Federal Countries*, Canberra: Centre for Research on Federal Financial Relations, 2-18.

Musgrave, R., 2000, *Public Finance in a Democratic Society*, Vol. III: The Foundations of Taxation and Expenditure, Cheltenham, Edward Elgar.

Oates, W. E., 1968, The Theory of Public Finance in a Federal System, *Canadian Journal of Economics*, . 37-54.

Oates, W.E., 1972, *Fiscal Federalism*, New York, Harcourt Brace Jovanovich, Inc.

Oates, W.E., 2005, Towards a Second – generation Theory of Fiscal Federalism, *International Tax and Public Finance*, 12, 349-373.

OECD, 2004, *Lessons learned on Donor Support to Decentralization and Local Governance*, DAC Evaluation Series, Paris: OECD.

Program on Women’s Economic, Social and Cultural Rights (PWESCR), 2015, *HUMAN RIGHTS FOR ALL - International Covenant on Economic, Social and Cultural Rights Handbook*.

Public Service Accountability Monitor (PSAM), 2019, Handout for Session 2 on A Rights- Based Approach to Social Accountability and the State, Rhodes University, Grahamstown, South Africa. 18th-29th March.

Salm, M., 2014, *Property Taxes in BRICS, Comparison and a First Draft for Performance Measurement*. Online.

Satola, L., A. Standar and A. Kozera, 2019, Financial Autonomy of Local Government Units, Evidence from Polish Rural Municipalities, *Lex Locali’s-Journal of Local Self-Governance*, 17, 321-342.

Sharma, K., 2000, Popular Participation in Botswana, *Regional Development Dialogue*, 21/1, 177-191.

Standar, A. and A. Kozera, 2019, The Role of Local Finance in Overcoming Socioeconomic Inequalities in Polish Rural Areas. *Sustainability* 11: No. 5848.

Stegarescu, D., 2005, Public Sector Decentralization, Measurement Concepts and Recent International Trends, *Fiscal Studies*, 26/3, 301-333.

Tanzi, V., 2000, Fiscal Federalism and Decentralization, A Review of Some Efficiency and Macroeconomic Aspects, Chapter 14, 231-263, in *Tanzi V.: Policies, Institutions and the Dark Side of Economics*, Cheltenham: Edward Elgar.

UNDP, 2000, *Decentralized Governance in Malawi, Executive Summary*, Lilongwe, UNDP.