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Effect of Taxes on Investment Growth in Rwanda

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Abstract: ***Investment is considered as one of the important pillars for attaining durable economic growth. There are many and different studies conducted in Rwanda on investment, but no any of them that has assessed the effect of taxes as a fiscal policy tool on investment growth in Rwanda to thoroughly disaggregate certain fiscal policy variables. The effects of fiscal policy on investment growth have not been given much attention given that Rwanda has comprehensively used taxes among others as a fiscal policy for its promotion.The general objective of the study was to analyze the effect of fiscal policy (taxes) on investment growth in Rwanda. This study used both descriptive and analytical research design. Ordinary Least Square (OLS) method was employed in analyzing time series data captured over the period under this study. Granger casualty test was used to test causality relationship between taxes as a fiscal policy tool and investment growth. The study used annual time series data spanning from 2000 to 2017. The residual is stationary, t-statistic (-4.927634) is less than critical value (-1.961507) and the probability (0.0001) is less than 5% and the Durbin- Watson Stat is greater than R^2 which is (1.131953) >(0.953127). Based on theresults, the researcher established that R-squared is significant at 95%. This means that taxes as a fiscal policy tool contributed to the investment growth of Rwanda. The results show that independent variablehas a positive impact on investment growth in Rwanda, where coefficient of variables have positive sign, (5.265211) Tax. This became evident that taxes as a fiscal policy tool has contributed positively on investment growth in Rwanda from 2000-2017. The development of taxes especially tax policy as a sub-set of a fiscal policy is important in sustaining long-term investment growth. The co-integration test illustrates that the variables were co-integrated and implying that a long run relationship exists on the investment growth in Rwanda. Therefore, the researcher accepts H1#0 and fails to reject H0. The findings of this study call for authorities in Rwanda for intervention in three areas: re-examination of tax policy to promote more domestic and foreign investment; providing more credit to the private sector and developing appropriate policies that deal with the current high domestic public borrowing.***

1. Background of the Study

Fiscal policy refers to the means by which a government adjusts its expenditures and tax rates to monitor, evaluate and influence the nation's economy. It is the sister policy to the monetary policy through which a central bank have influence on nation's money supply. These two tools are used together to direct the country's economic goals. Here we establish how fiscal policy works, how it monitor it and how its execution may affect different categories of people in an economy. It is a financial instrument deployed by the government as a deliberate management of government revenues and spending to achieve economic and social objectives and keep a balanced growth. IMF (2015) mentioned that the main objectives of fiscal policy are to allocate resources, stabilize the economy and redistribute income. He also states that the main tools of fiscal policy are government spending and taxation. To measure the effect of fiscal policy on output, economists usually use the fiscal multiplier. This is defined as the ratio of a change in output (ΔY) to an exogenous change in the fiscal variables (as ΔG or -ΔT), and it takes different approaches (Pieschacon, 2012).

Over past decades, the economy of Rwanda encountered many shocks and disturbances which led to both internal shocks such as unbalanced investment and consumption patterns and external shocks e.g. genocide, population growth rates and migration, technological transfer and changes. These crises also impacted the activities of private investors where majority of them failed to continue their business due to high costs of production, unstable enabling business environment and insecurity, etc. In a favorable environment though business can boom. This calls for governments roles to manage the fiscal policy investment growth. In 1994, Rwanda faced an insurmountable level of budget deficits and higher real interest rates than expected when fiscal and monetary authorities worked parallel mainly because fiscal authorities were not ready to limit their spending decisions. In the end, such deficits financing turn to diverge inflation developments distant from their policy targets. In a study by Shabbir and Ahmed (1994) affirm that investment growth in Rwanda was directly affected by fiscal deficits. Likewise, in a not well managed macroeconomic environment, fiscal policy remained submissive to investment. In this regard, fiscal policy straightly affects investment growth (Asante, 2010).

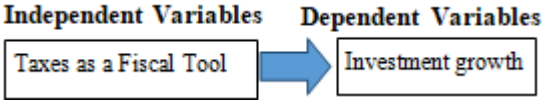
1.1 Statement of Problem

Investment has been registered as one of the major poles for achieving durable economic growth (Jayaraman, 2011). Various studies have justified undertaking of economic reforms on the basis that such reforms generate a conducive environment for investment by unblocking the bottlenecks that jeopardize investment. In Rwanda, fiscal reforms have been undertaken with the aim of rebooting the economy whose growth was put down and hit by genocide. Tax administration, tax decentralization and strong public borrowing management are some of reforms that have been undertaken with objective of making the economy more efficient and attracting private investors for establishment. The ratio of investment to GDP in Rwanda in the period (2010 – 2015) averaged 12.7 per cent. This percentage is not at the levels in advanced economies which is needed to stimulate economic growth needed for job creation and poverty reduction (World Bank, 2010).

According to Herandez-Cata (2010), the rate of investment to GDP averaged 16% in Latin America, 18% in developed countries and 16.5% in newly industrialized countries in Asia. Gillis et al. (2014) proposed that this proportion should not be less than 15% of the GDP at any time, and that the country should target and sustain investment level of at least 20% of GDP. To attain economic growth of over 10% and

sustain it, investment as a ratio of GDP targets in the Rwanda's National Strategy for Transformation should be at least 21% by the year 2018, and above 24% by the year 2024 (National Strategy for Transformation, 2018). However, in 2007 this ratio was only 12.4%, implying that realizing the set target in the first National Strategy for Transformation can be elusive if efforts are not made to increase investment. From different studies done in Rwanda on investment, none of them has assessed the effect of taxes as a tool of fiscal policy on investment in Rwanda. The effects of fiscal policy (taxes) on investment have therefore not received much attention despite the fact that the Rwandan government has intensively used taxes as part of its wider fiscal policy for its promotion. It is therefore not clear what effects of the level of tax policy reforms, tax collection and administration in fiscal adjustment processes have on investments. This forms the thrust of this study.

2. Conceptual Framework



3. Methodology

The central objective of this study was to test for the causal relationship between fiscal policy and investment growth in Rwanda and adopted a time series method, which is considered relevant for this study and may provide a good picture into the linkages of these variables. This study was used to respond to the reach design, data manipulation procedures and model specification. This study applied the econometrics models including Augmented Dickey Fuller (ADF) test, Co-integration test, Vector error Correction Model (VECM) and Ordinary least squares (OLS).

Research design is the prototype for the collection, proportion, assessment of data and a roadmap to get answers to research questions. This study used both descriptive and analytical research models. Ordinary Least Square (OLS) method was also used in assessing time series data collected over the period for this study. Granger casualty test was applied to measure the causality linkages between fiscal policy and investment growth.

The study majorly applied secondary data. The study used annual time series data from 2000 to 2017. Data for this study was collected from MINECOFIN, National Institute of Statistic of Rwanda and National Bank of Rwanda.

In same line with the conceptual framework, the model of this study was composed by IVGt which was used as a dependent variable and tax, government borrowing and foreign capital inflow.

Model in linear-from
IVG=β0+β1Tax+β2G+β3FCI+$\varepsilon t$where
IVGt = Investment growth at a certain time t;
Tax t = Tax at certain time t;
Gd= Government borrowing at certain time t;
FCI t =Foreign Capital Inflow at certain time t;
β0= the intercept; ε_t = the Error term; we put t after each factor or variable to mean the time subscript.
β_1& β_3= these are Coefficients of each individual independent variable.
Dependents = Economic growth or GDP and variable $x_1 - x_3$ are the independent variables (f) portraying the functional figure. This can be especially written as:

$$IVGt = f(\text{Tax}, Gd, \text{FCI}t) \ldots\ldots\ldots\ldots (1)$$

$$\log(\text{IVGt}) = \beta 0 + \beta 1 log(\text{Tax}) + \beta 2 log(Gd) + \beta 3 log(\text{FCI}t) + \varepsilon \quad (2)$$

$$\log(\text{IVG})t = \beta 0 + \beta 1 log(\text{Tax})t + \beta 2 log(Gd)t + \beta 3 log(\text{FCI}t)t + \varepsilon \quad (3)$$

This study applied the ADF as the measure for stationarity, Johansen co-integration test and VECM modeling. These are all used in order to reach a conclusion that applied free from any doubt and this can generate the acceptance of conclusions and recommendation of this study.

For purposes of understanding deeply and to show the bi-direction between fiscal policy and investment growth, the researcher chosen to learn using statistical analysis for attaining the relationship between these two variables. The econometric techniques were applied, to include statistical analysis, econometric graphs and diagnostic test was used to maintain data reliability and not be affected by such serial correlation or heteresdostecity.

For having more information about it, researcher used the econometric analysis in order to find out how those two variables are correlated in the view of economy. Researcher used the comfortable software program E-views 7 for interpreting data and arranged in the economic sense and estimated the equation in Ordinary Least Squares (OLS).

The macroeconomic data are demonstrated by a stochastic trend and if not solved, the statistical estimators are influenced by such a trend such that findings may be affected. Hamilton,(1994), there are various methods of solving the problem of spurious regression coming from using no-stationary time series. Augmented Dickey-Fuller (ADF) Unit root Test.This measures for the presence or absence of unit root in a series. It is a better version of Dikey-Fuller test as it may solve larger and more complex dataset.

Although traditional regression models suggest that both the dependent and independent variables are stationary and that the errors have mean zero and constant variance, the main issue in standard regression models is the presence of unit roots in the series given majority economic time series normally react with stochastic trends. With proof of unit roots, the series are considered to be intergraded of order one I(1), meaning that they must be modeled in first differences (Δyt = yt - yt-1) to ensure their stationarity. A time series is considered stationary when it does not change overtime, which means that its values have stable variability. Generally, with results of non-stationary variables such as those in time series analysis, the data might present spuriousregressions (means that has high R^2, t-statistics that is significant, but with no significant economic findings). Thus, unit root tests account for potential correlation of unit roots in the first differences in the time series (Ramona, 2010).

The rationale behind stationarity lies much on the conventional asymptotic theory for least squares method was used in regression this test used to know the methodology to be adopted. When the series are stationary, researcher used the ordinary least squares (OLS), but when the series are no stationary researcher cannot used OLS because researcher may have a non-sense regression or a spurious regression in the terminology of granger and new bold.

Assume Y_t and Y_{t-1}, Y_t is stationary when E (ε), variance and auto variance of Y_{t-1} remain identical to those of Y_t. When a series is stationary, its mean, variance and auto covariance of various lags are constant for any margin where they are checked, in other words they do not change over time.

The series in stationary process was turning to turn around its mean and fluctuations around its mean (variance) have generally constant level. The stochastic process is stationary when:
Mean: E $(Y_{t)} = \mu$
Variance: var (Y_t) = E (Yt- μ) = $\sigma 2$
Covariance: cov (Y_t, Y_{t+k}) = E $[(Y_t - \mu_t) (Y_{t+k} - \mu_{t+k})] = \Omega_k$

A stochastic process satisfying the above conditions is said to be weakly stationary. A time series that does not satisfy these conditions is said to be no stationary. A non-stationary process can be stationarized by differencing it n^{th} times. A time series is said to be integrated of order d, written I (d), when after being differentiating it'd times it becomes stationary. A series is integrated of order zero when it is stationary at level.
E.g. : -I (0): the series are stationary at level
-I (1):the series become stationary after the first difference
-I (2):the series become stationary after the second difference

The dickey-fuller (DF) and Augmented Dickey-Fuller (ADF) tests are performed to test the unit root in time series. The following equations are used as basis for the tests:
Alternative DF equations
1. $\Delta Y_t = \alpha_a + \gamma_t + \delta_a Y_{t-1} + \mu_t$: 1st alternative DF equation
2. $\Delta Y_t = \alpha_b + \delta_a Y_{t-1} + \mu_t$:2nd alternative DF equation
3. $\Delta Y_t = \delta_c Y_{t-1} + \mu_t$:3rd alternative DF equation

If δ=0 is retained in one of these 3 models, there is unit root. These alternative equations are augmented by addition of the shifted values of the dependent variable ΔY_tlags. The equations are called augmented dickey-fuller equations.

The equations become
1 . $\Delta Y_t = \alpha_a + \gamma_t + \delta_a Y_{t-1}$

The ADF is mostly used because it is assumed to be more accurate (inclusion of $\sum_i^{p-1}{}_{=1}$
1δ It Δ Yt-1 improves the results of ADF.

According to (Gujarati, 2010), two series are said to be co-integrated when they share a common stochastic trend, implying that there might be long-run relationship between the two series. A co-integration test involves testing the co-movement of variables. When variables move together over time with a stable difference them, then we say the variables are co-integrated. Co-integration test may be performed using Engle and Granger residual-based approach and Johansen test. Engle and Granger residual-based approach considers a one unique co-integration vector, and uses a simple Ordinary Least Square (OLS) to test the long run equilibrium between variables at level. The omission of other variables may breed bias in the model. Though simpler to use, but the Johansen method is considered to be more reliable, since it considers more variables in the model. (Enders, 2014) explains that, the two step procedure employed in this test, involve carrying forward residuals from the first stage to the second stage, which is risky as error from the first stage would be carried to the next stage. The researched used the Johansen method for this study.

This is a restricted VAR which help to estimate the speed the dependent variable; in this case investment growth returns to equilibrium after there are changes in the explanatory variables. VECM can only be applied if the co-integration test proves existence of a rough long-run relationship between the variables, so as to estimate the shot-run dynamics as well as the transitory aspect or long-run dynamics of the variables.

The dynamic relation established by the model with correction of error ECM is deducted from relation of long term rising from the method of Engel and Granger, the characteristics of the models with correction of the error is to combine in the same specification of the effects of that short term with those of the long term, thus all the information of long term on the level of variables is stored in the model (Judith, 2011). Around the long run relationship, the error correction model permits to integrate the short run fluctuations, if the coefficient comes negative it would change model in the long run equilibrium so with E-views the long run model would be done the short run model.

Unlike other tests that simply identify the relationship between variables, Granger causality tests checks the causal relationship, this test is used to determine whether one time series was used to forecast another. (Granger, 2009), points out that causality is said to exist between two variables when a variable (*X*1) Granger-causes (predicts) another variable (*X*2) better than that variable can predict itself. "[T]he statement "yi causes yj" is just shorthand for the more precise, But longwinded, statement, "yi contains useful information for predicting yj (in the linear least squares sense), over and above the past histories of the other variables in the system" (Diebold, 2011).

4. Results and Discussion

Introduction
Almost in different studies in line with the analysis of variables in economics, econometrics is very crucial and needed to avoid issues and arriving at the confidential interpretation which help the decision makers in their policy decisions. The Researcher chosen to use the econometric tools. This study regards the analysis correlation between fiscal policy and investment growth in Rwanda.

Model Specification

The model look like this: $Y = f$ (Tax t + Gd t + FC It),
Y= Investment growth, or aggregate output in other words
IVG t = Investment growth at a certain time t;
Tax t = Tax at a certain time t;
Gd= Government borrowing at a certain time t;
FCI =stands for foreign capital inflow, at a certain time t;
β0= intercept; ε_t = Error term; t after each individual variable is given the time subscript.
β_1& β_3= Coefficients of each of the individual independent variable.

$IVG\ t=\beta 0 + \beta_1 Taxt + \beta_2 Gdt + \beta_3\ FCI\ t + \varepsilon$……..(1)

$LNIVG\ t=\beta_0 + \beta_1 LNTax + \beta_2 LNGd + \beta_3\ LNFCI\ t + \varepsilon$……....(2)

$DLNIVG\ t =\beta_0 + \beta_1 DLNTax + \beta_2 DLNGd + \beta_3\ DLNFCI + \varepsilon$……..(3)

Where β0 =is the intercept;
$\beta_1, \beta_2, \beta_3$ = are the parameters of the model of regression.
ε = Error term at period t.

Expected signs

Variables	IVG t	Tax t	Gd	FCI
Expected signs	+	+	+	+

The model is:
$IVG=\beta 0+\beta_1$ Tax t $+\beta_2$ Gd t$+\beta_3$ FCI t $+\varepsilon$
IVG is dependent variable.
Tax, Gd and FCI, have positive sign, it means that all dependents variables have positive contribution to the investment growth.

Test of stationarity

To test the stationarity, the unit root test was used or Dickey Fuller (DF) test, that would allow making the characteristic stationary or no chronologic series. There the simple Dickey Fuller test which suppose the error term to be white noise. The Augmented

Dickey Fuller test (ADF) takes a reference from hypothesis. The DF and ADF tests using three models including one or many autoregressive differential.

In order to make the good analysis, the researcher starts by analyzing the model:
$IVGt=\beta 0+\beta_1 Taxtt +\beta_2 Gdt+\beta_3 FCIt+\varepsilon$

This model is made up of some variables which the data was collected. This model is the linear model and it is difficult to analyze it given all data are not picked in the same amount, that is why the researcher used (Ln) in this model in order to dodge the spurious problem and it became the log-log model.
Linear model: $IVG\ t = \beta_0 + \beta_1 Tax\ t +\beta_2 Gd\ t+ \beta_3 FCI\ t + \varepsilon$
Log-log model: $LNIVG\ t= \beta_0 + \beta_1 LNTax\ t+ \beta_2 LNGd\ t+ \beta_3 LNFCI + \varepsilon t$

A stochastic process conforming to the above conditions is given to be weakly stationary. A time series that does not matching these conditions is considered to be no- stationary. So a non-stationary process was varying over time changing or both.
A non- stationary process can be stationarized by differencing it n^{th} times. A time series is said to be integrated of order d, written I (d), when after being differencing it "d" times it changes to stationary. A series is integrated of order zero when it is stationary at level (Tharawanji, 2009).

Analysis and interpretation of the data Unit root test

Unit root testat second different							
Variables		**ADF**	**CV**	**Probability**	**R squared**	**DW**	**LAG**
IVG t	Intercept	-6.586223	-2.463146	0.0000	0.547606	2.266768	2
Tax t	Intercept	-5.018773	-2.965453	0.0000	0.474563	1.425531	2
Unit root test at level							
Gd	Intercept	-4.666608	-2.530552	0.0000	0.635553	2.444743	2
Unit root test at level at second different							
FCI	None	-22.34586	-1.966414	0.0000	0.454145	1.624515	2

Source: Computed by Researcher using E views version 7

Given the above table, the researcher observes that IVG is stationary at the degree of intercept at lag 2 and Tax is stationary at intercept on lag 2 while Gd and FCI were stationary at intercept and none in lag 2.

Residuals test

Test of Residuals

By using the ADT Unit Root test on the residuals estimated from the co- integrating regression, the Econometric package E-views version 7 gives the following results.

Null Hypothesis: R has a unit root				
Exogenous: None				
Lag Length: 0 (Automatic - based on SIC, maxlag=6)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-4.957724	0.0001
Test critical values:	1% level		-2.699769	
	5% level		-1.961409	
	10% level		-1.606610	
*MacKinnon (1996) one-sided p-values.				
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(R)				
Method: Least Squares				
Date: 31/10/18 Time: 15:02				
Sample (adjusted): 2000- 2017				
Included observations: 17 after adjustments				

Variable	Coefficient	Std. Error	t-Statistic	Prob.
R(-1)	-0.884804	0.481104	-1.862843	0.0001
R-squared	0.964128	Mean dependent var		339.4593
Adjusted R-squared	0.094228	S.D. dependent var		2315.542
S.E. of regression	2156.220	Akaike info criterion		18.17071
Sum squared resid	1.345.07	Schwarz criterion		18.31166
Log likelihood	-234.6528	Hannan-Quinn criter.		18.35246
7Durbin-Watson stat	1.145924			

Source: Computed by Researcher using E-views version 7.

Referring to the above Table 3 the residual is stationary, t-statistic (-4.957724) is less than critical value (-1.961409) and the probability (0.0001) is less than 5% and this table shows that the Durbin- Watson Stat is greater than R^2 which is (1.145924) >(0.964128). Given thoseresults, the researcher found that R-squared is significant at 95%. This means that the fiscal policy contributed to the investment growth of Rwanda.

Estimation of model

To estimate the long run relation between variables

Model: $IVGt=\beta_0+\beta_1 Taxt+\beta_2 Gdt+\beta_3 FCIt+\varepsilon$

After analyzing the stationarity by using the ADF Unit Root test, let's estimate this model by taking into the consideration the model of the variables that are stationary.

Co-integration (Long run relationship)

Dependent Variable: IVG				
Method: Least Squares				
Date: 31/10/17 Time: 17:46				
Sample: 2000 2017				
Included observations: 17				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
Tax	5.265310	1.712110	3.418454	0.0019
Gd	4.015408	2.911208	1.274603	0.0066
FCI	2.514207	2.082507	1.351976	0.0072
C	0.022775	624.2051	0.455424	0.6523
R-squared	0.055132	Mean dependent var		1467.438
Adjusted R-squared	0.219610	S.D. dependent var		2282.372
S.E. of regression	2016.240	Akaike info criterion		18.17232
Sum squared resid	1.142408	Schwarz criterion		18.35554
Log likelihood	-286.7572	Hannan-Quinn criter.		18.23306
F-statistic	3.907913	Durbin-Watson stat		1.691052
Prob(F-statistic)	0.018909			

Source: Computed by Researcher using E-views version 7.

Estimation Equation:

IVG = C(1)*Tax + C(2)*Gd+C(3)* FCI

Substituted Coefficients:

IVG = 5.265310*Tax +4.015408*Gd+2.514207*FCI

β0=0.022775

GDP= 0.022775 + 5.265310 Tax + 4.015408 Gd +2.514207 FCI

Co-integration is an econometric nature of time series variables. If two or more variables are non-stationary, but a linear combination of them is stationary, the theory of time series are considered; to be co integrated it is always stated that co integration is a way for correctly testing hypothesis concerning the correlation between two variables having unit roots. Testing co integration, there are two most famous methods, the Engle Granger (EG) two steps method and Johansen procedure. The first one is analysis of stationarity for the residuals from the degree of regression.

The variables were co- integrated; meaning all variables have a long run relationship among them. Thus, the researcher confirms that all variables are co-integrated and there is long run relationship among variables.

5. Discussion and Interpretation

The findings of the relationship of taxes as a fiscal policy tool and investment growth presented in Table 4. It is clearly highlighted from the findings that taxes as a fiscal policy tool influences the process of investment growth in Rwanda. Fiscal policy (Taxes) influenced the investment growth in positive terms and significantly.

IVG = 0.022775 + 5.265310 Tax + 4.015408 Gd +2 .514207 FCI

The findings indicate that all independent variables have got positive impact on investment growth, all coefficients of variables have positive sign, (5.265310 Tax) Tax, (4.015408) Gd and (2 .514207) FCI. This presents that fiscal policy influenced positively investment growth in Rwanda from 2000-2017. When Tax increased by1 unit, keeping Gd and Fci constants, IVG expected to rise (5.265310). This again appears that all variables influenced positively on investment growth. R^2 (0.055132) indicates the goodness of fit of the model. Even if R^2 is still small but the variables applied on this research are not the only ones contributing to the investment growth in Rwanda, there are other variables which contributed to the investment growth in Rwanda.

Error correction model (ECM)

Error Correction Models (ECMs) is a category of multiple time series models that directly estimate the speed at which a dependent variable (Robin Best, 2008).

Y - Returns to equilibrium after a change in an independent variable - X.

ECMs are useful for estimating both short term and long term effects of one time series on another.

ECMs are useful models when dealing with integrated data, but can also be used with stationary data. The dynamic relation established by the model with correction of error ECM is deducted from relation of long term rising from the method of Engel and Granger, the characteristics of the models with correction of the error is to combine in the same specification of the effects of that short term with those of the long term, thus all the information of long term on the level of variables is stored in the model (Judith, 2011).

Around the long run relationship, the error correction model permits to integrate the short run fluctuations, if the coefficient comes negative it would change model in the long run equilibrium so with E-views the long run model was done the short run model.

Error correction model

Dependent Variable: IVG				
Method: Least Squares				
Date: 31/10/18 Time: 18:04				
Sample (adjusted): 2010 2017				
Included observations: 17 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.085506	621.2038	1.633078	0.1152
Tax	3.456610	1.94E-22	0.987722	0.0038
Gd	0.234108	5.167708	1.780558	0.0061
Fci	2.345608	2.053407	0.263462	0.0038
R(-1)	-0.096766	0.445125	-0.345657	0.0031
R-squared	0.077116	Mean dependent var		1499.380
Adjusted R-squared	0.466218	S.D. dependent var		23127.998
S.E. of regression	1733.268	Akaike info criterion		17.84247
Sum squared resid	79661393	Schwarz criterion		18.15226
Log likelihood	-272.9113	Hannan-Quinn criter.		17.98457
F-statistic	6.677012	Durbin-Watson stat		2.075855
Prob(F-statistic)	0.000620			

Source: Computed by Researcher using E-views version 7

This Table 4.5 indicates that R(-1)= -0.096766, this implies that as far as time is concerned, the errors will be corrected at time t. The value of R(-1), this means that, nowadays fiscal policy influence the investment growth in long run. All independent variable (Tax, government borrowing and foreign capital inflow) are positively correlated to the investment growth. R^2 (0.077116) highlighting the goodness of fit the model. This means that from 2000-2017 fiscal policy (taxes) has contributed 7% on investment growth of Rwanda.

IVG=0.022775 + 5.265310 Tax + 4.015408 Gd +2.514207 FCI -0.077116 (R-1)

The findings of the ECM, which incorporate the effect of fiscal policy and investment growth, estimated through ECM testing approach. Taxation (5.265310), government debt, (4.015408) and foreign capital inflow (2.514207) have indicated its positive and statistically significant relationship on investment growth of Rwanda. It shows that taxes as a fiscal policy tool stimulates the investment activities and development process in the country to a greater extent, which is obvious from the higher positive value of its coefficient. The positive and statistically significant values of all dependents variables.

In view of goings on the fiscal policy over recent years it might be interesting to inquire whether the behavior of the market (as represented, say, by the Dow–Jones Industrial Average) can be modeled as a case of "long-run equilibrium plus error correction". What might be a plausible model for long-run equilibrium in this case? Well, corporate stocks ultimately derive their value from the fact that there are claims on the profits made by firms. Thus it seems reasonable to suppose that stock prices should reflect the present discounted value of the future (expected) stream of corporate profit.

6. Discussions

IVG=0.022775 + 5.265310 Tax + 4.015408 Gd +2.514207 FCI -0.077116 (R-1). The findings of the ECM, which incorporate the different elements of fiscal policy and investment growth, estimated through ECM testing approach. As such, Tax (5.265310), borrowing (4.015408) and foreign capital inflow (2.514207) have a statistically significant relationship on investment growth. It shows that taxes as a fiscal policy stimulates the economic activities and development process in the country to a greater extent, which is demonstrated by the higher positive value of its coefficient.

The result shows that all independent variables have positive effect on gross domestic products. All coefficients of variables have positive sign, Tax (5.265310), fiscal policy (4.015408) and (2.514207) FCI. This shows that fiscal policy has contributed positively on the investment growth from 2000-2017. R^2 (0.055132) showing the goodness of fit the model.

The data shows that investment growth, Taxes, government debt and foreign capital inflow have positive relationship with investment growth in Rwanda. Augmented Dickey-Fuller test statistic show that critical value (-1.952309) is greater than ADF value (-4.965323), which means that there is a significant relationship between fiscal policy and investment growth in Rwanda.

7. Conclusion and Recommendations

The growth of investment in Rwandaattracted the researcher to study the effect of taxes as a fiscal policy tool on investment growth in Rwanda. The effect of independent variable is empirically tested on investment growth as a dependent variable for the period of 2010 to 2017. As such, the results reported the expected positive signs which are statistically significant at some level of significance. The fiscal policy is important in sustaining investment growth as the case has shown in Rwanda for the period of study. The co-integration test illustrates that the variables were co-integrated and implying that a long run relationships exists on the investment growth in Rwanda. Therefore researcher accepted H1#0 and fails to reject H0.

The results also showed that there is a strong positive correlation between investment growth and increment in tax collection in Rwanda. This explains that the investment growth in Rwanda has been attraction and promoting investment in Rwanda.

Thus tax efficiency and growth is very key in increasing the Country's investment growth. More to this, by increased taxes collection it means the Country's capacity by create a conducive environment of businesses "Government becoming the enabler" by heavily investment in infrastructure such as energy, transport and logistics, urban development, water and sanitation and market-driven skills development among others needed by most investors.

The above relationship between taxes growth and investment growth is emphasized by Rwanda's performance in the World Bank Doing Business Report where in 2018 Rwanda rose 15 places in to feature in position 41 globally and 2nd on the continent behind Mauritius

Further, on the issue of relationship between investment growth and debt servicing the results have shown very strong correlation. Rwanda's debt servicing has been improving steadily over time and this has attracted more investments in Rwanda from within and outside of Rwanda. Thus an indication that a Country's servicing capacity can affect the investment levels over the time.

The increased confidence can be demonstrated by international sovereign rating companies like Standard & Poor's where Rwanda's credit rating stands at B with positive outlook (2018). Moody's credit rating for Rwanda was last set at B2 with stable outlook (2018) while Fitch's credit rating for Rwanda was last reported (2018) at B+ with stable outlook. In general, a credit rating is used by sovereign wealth funds, pension funds and other investors to gauge the credit worthiness of Rwanda thus having a big impact on the country's borrowing costs and investment growth.

The researcher has faced some limitations during the research process which include the following; the accessibility of secondary data during the study process, financial constraints and inadequate source of relevant local researchers.

The central hypothesis of the study has been to test how taxes as a fiscal policy tool affected investment growth in Rwanda. There is a significant change in investment growth in Rwanda within the study period. The econometric analysis shows that the benefits of fiscal policy are even larger considering that tax; government debt and foreign capital inflow have positive effects on investment growth.

The study confirms the importance of fiscal policy as the most important determinant of investment growth.

Based on the results of findings of the study, the following recommendations were made:

The findings of this study call for authorities in Rwanda for intervention in three areas: re-examination of tax policy to promote more domestic and foreign investment; providing more credit to the private sector and developing appropriate policies that deal with the current high domestic public borrowing. Currently Rwanda is considered as a technology hub in East African Region. Rwanda should use this opportunity to promote investment through, online advertisement like social media, etc.

Government of Rwanda should continue to educate the local investors from different sectors, the importance of promoting local investment like made in Rwanda. The Researcher is proposing the following topics for future further Research:

Efficiency of public sector spending on investment in Rwanda;

Role of foreign direct investment on access to finance to Rwandan Businesses.

Public-Private-Partnerships and investment growth in Rwanda

Role of Joint ventures on investment growth in Rwanda

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