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# THE IMPACT OF THE GOVERNMENT REVENUE AND EXPENDITURE ON THE ECONOMIC GROWTH IN MYANMAR

#### SI THU KYAW

#### **Abstract**

The study focuses on investigation of co-integration between revenue and expenditure of government and GDP growth. The study aims to find to examine the relationship and causality between government revenue and expenditure. The Ordinary Least Square (OLS) regression results show that an expending expenditure raise government revenue, and both are positively related in Myanmar. According to the Granger Causality test, Government expenditure cause revenue and revenue also cause expenditure. According to Auto-regressive Distributed Lag (ARDL) bound test, the government expenditure have positive influence on GDP growth in the long run and negative influence in the short run. The government revenue has effect on GDP growth negative in the short run and positive in the long run. Besides, they have co-integration and long-run relationship in Myanmar economy.

Keywords: Myanmar, GDP Growth, Government Revenue and Expenditure, co-integration

#### 1. Introduction

Fiscal Policy is conducted to balance the macroeconomic situations. Both fiscal and monetary policies play important role in an economy. Government taxation and expenditure deal with fiscal policy which is a useful instrument for achieving sustainable economic growth. Thus, economic policymakers have been concerned with fiscal policy adjustments put to task in the economy and then implications. In developing countries, government intervenes in the market usually because private institutions cannot fully drive the economic boom, where government mainly supports fundamental institutions (such as road infrastructure, electricity, transportation, rule of law and etc.) that cannot be potentially initiated by private organizations.

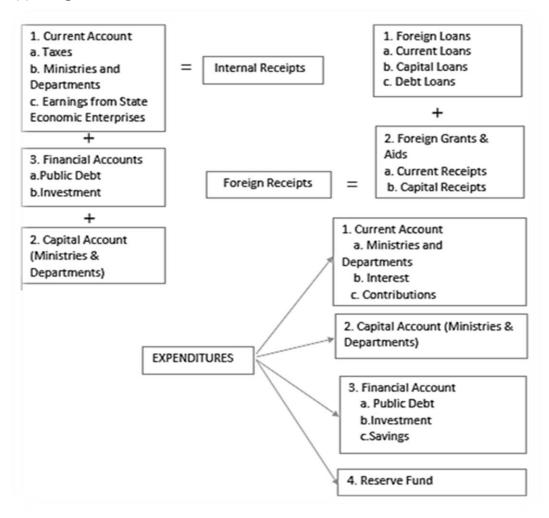
In fact, countries need to invest in such fundamental institutions. On the other hand, the government in most developing countries rely on income from taxation which mainly provides revenue. In such a case if the government has low revenue the expenditure will also decrease unless the government increases a fiscal deficit which means the expenditure exceeds revenue. The fiscal deficit resulting from growing government spending can lead to trade deficits and exchange rate depreciation and thereon slow economic growth in the economy. The fiscal deficit has potential to cause interest rate increase and higher inflation rate, where increased interest rate leads to increased cost in doing business; thus business booming can be delayed in an economy.

Myanmar generated fiscal deficits through its budget system since the last two decades when the economy had been undertaking market economic system. The economy failed to stabilize itself because of mismanagement of market system where economic and political ideas were forced to convert to centralization form. Unstable political situations have impacts on economic conditions in the country which will cause government inefficient spending and lost revenue.

# 1.1 Budget Mechanism of Myanmar's Economy

There are two main sources of government revenues, from internal receipt and foreign receipts. The internal receipts are combined with current, capital and financial accounts. The foreign account is composed of foreign loans and foreign aids and grants. The government contributes its expenditures from four sources, the current, capital and financial accounts and reserve fund.

Figure (1) Budget flows mechanism



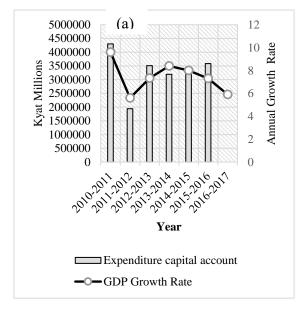
Sources: CSO, Myanmar (2017)

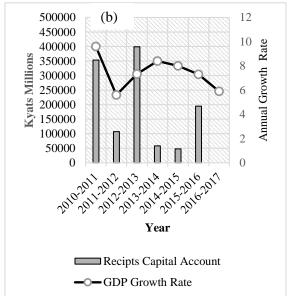
#### 1.2. Overview of Budget Receipts and Expenditures in the Economy

Government receipts are mainly from taxation in general. Taxation systems in Myanmar have been making reforms since the country opened in 2011, with impacts on government receipts and economic situations. The following figures explain the difference between government receipts and expenditures in various accounts.

In figure (1-a) receipts and expenditure in capital account is shown, both explaining how the capital account expenditure positively influences GDP growth, with the expenditure and growth declined in 2011-2012. Continuously, the increased expenditure causes growth again in 2012-2013. Although the evidence explained positive relation in the two variables, sometimes negative relationship can be seen as in the figure. During the period of study, the capital account caused the economic growth.

Figure (1) Relationship between GDP growth and Government Capital receipts and expenditures

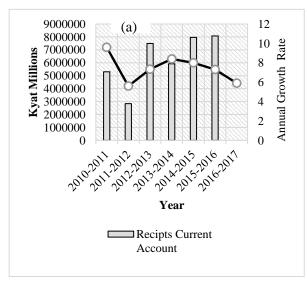


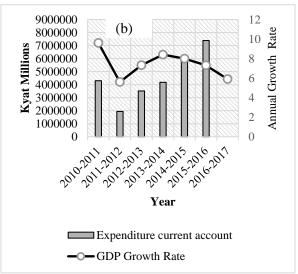


Data Source: CSO, Myanmar (2017)

Mostly, the government conducts current expenditures from current receipts and capital expenditure from capital receipts. In figure (2), current account has been increasing during six years from 2011 to 2016, except 2012-2014 fiscal year. Both receipts and expenditures had been increasing in which the increment of expenditure was growing at almost equal volume yearly, and the increment of receipts happens fluctuation. The current receipts increment were positively related to GDP growth during four fiscal years, from 2010-2011 to 2013-2014. In 2014-2015 fiscal year, the current account expenditure declined leading to GDP growth fall, with the growth gradually falling until 2015-2016 fiscal year.

Figure (2) Relationship between GDP growth and Government receipts and expenditure





Source: CSO. Myanmar (2017)

The current account balance of payment is mainly concerned with exports and imports sector. So the balance of payment deficit and surplus have a larger impact on the current account. According to figure (current account), the trade deficit had a direct impact on growth so that a large amount of deficit lead to slow GDP growth rate in Myanmar. From 2012-2013 to 2015-2016, the trade deficits became large volume that effects to current account.

**─**Total Expenditure -GDP Growth Rate Total Recipts 12.00 10.00 8.00 6.00 Rate 4.00 2.00 0.00 2012-2010 2013-2014-2015-2016-2013 2012 2015 2011 2014 20162017 -2.00YEAR

Figure (3) GDP growth, government receipts and expenditures

Source: CSO, Myanmar (2017), calculation of growth<sup>1</sup>

According to the figure (3), both receipts and expenditures moved together with GDP growth during the first three fiscal years. It is noted that the growth caused increase in government receipts and expenditures. It can also be concluded that the expenditures led to growth and created more government receipts. Both total receipts and expenditures growth rate is based on year to year movements. Starting from 2013-2014 fiscal year, the economy of the may not have mainly depended upon government. "Because starting in 2012, the government of Burma initiated taking steps to decrease SOEs' (State Own Enterprises) dependence on government funding and to create them to be more competitive through joint ventures. This comprised reducing budget subsidies for financing the raw material supplies of SOEs. The government of Burma moved in policy in the direction of public private partnership, corporatization, and privatization. <sup>2</sup>"Moreover Myanmar Oil and Gas Enterprises (MOGE)

<sup>1</sup> Base year is 2010-2011, government total receipts and expenditure are calculated

<sup>2</sup> https://www.export.gov/article?id=Burma-state-owned-enterprises

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payment sharply increased in FY 2012-2013 although SEE (State Economic Enterprises) payment declined and revenue from taxpayers and non-SEE was improved. In April 2012, tax reforms were made in commercial tax, income tax which includes corporate income tax, individual income tax, capital gains tax, and withholding tax (World, 2015).

The gas sector through MOGE has the highest turnover among all SEEs, though 85 percent of MOGE's income is recorded as Other Income rather than Sales Revenue. The Other Income represents MOGE's profit share from Joint Venture projects. The decline in MOGE's Other Income started in 2015/16 with the impact of declining international commodity prices (Bank, 2017).

Therefore, during the period between 2012-2013 and 2015-2016 fiscal years, the privatization have not led to GDP growth because of external impacts, which caused decline in government receipts. The decline in capital expenditure caused shocks to GDP growth and the government is also necessary to ensure its legal and regulatory reforms to have a success of privatization process, to have benefits from both external and internal environment, which will increase GDP growth and lead to increase government revenue. Political and economic reforms had been undertaken, which promote government receipts and expenditures during 2011 to 2013 years. Starting from the fiscal year 2014-2015, the economy has been slowing down until 2016-2017<sup>3</sup> fiscal year.

## 2. Literature Reviews

The role of government is necessarily important to determine an economic policy choices. Most economic activities are dependent on government policies and plans which are used to initiate gains of sustainable economic growth and development. Revenue for government is needed to provide public well-being due to inefficiencies in the market system with market failure to provide all human needs.

The classical economists believe that the government should get involved market activities because the less-efficient market cannot carry out its equilibrium conditions. In "The Wealth of Nation" Adam Smith (1776) stated the "Laissez Faire Market" as a market where demand and supply can balance in market conditions with no government interventions. The ideas were opposed by John Maynard Keynes after the Great Depression which occurred in

<sup>3</sup>The fiscal year is changed by U Htin Kyaw, President from (1<sup>st</sup> April to 31<sup>st</sup> March) to (1 October to 30<sup>th</sup> September)

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1929-1930. In 1936, Keynes pointed out the classical economists emphasized too much on the long term, but in the long-run all are dead, meaning that the short-run period is therefore important, so the government should involve itself in market activities. Increase in government expenditure can create more production and more employment in the economy leading to growing per capita income and consumption and expense.

There are many theoretical economic benefits that are associated with the process of privatization. One of the central reasons is countries attempts privatization in order to reduce the size of the existing government. Based on the idea, many governments have tried to limit its roles in the market because of needless layers of bureaucracy. Therefore, many countries call for restructuring in order to develop efficiency, which can be accomplished through privatization. The private sector replies to incentives in the market, while the public sector often takes non-economic goals. In other words, the public sector is not highly driven to maximize production and allocate resources well, causing the government to run high-cost, low-income enterprises. Privatization directly moves the focus from political goals to economic goals, which causes development of the market economy (Poole, 1996). The downsizing aspect of privatization is a significant one since bad government policies and government corruption can play a large, negative role in economic growth (Easterly, 2001). By privatizing, the role of the government in the economy is reduced, thus there is less chance for the government to negatively impact the economy (Poole, 1996). Cook and Uchida's study suggested that the lack of proper governmental reforms might be the cause for a negative relationship between privatization and economic growth. Although privatization is a fairly recent economic policy pointed at promoting economic growth, it is harmless to conclude that privatization alone will not be the magical solution to the indefinable mission for growth. It is essential to note that the achievement of privatization largely depends on the government keeping its promise to legal and regulatory reforms (Filipovic, 2006).

Solow (1956), in his pioneer theory in this regard, namely the neo-classical growth model, concluded that taxes do not affect the steady-state of growth rate. This implies that although tax policies are distortionary they have no impact on long term economic growth rate and total factor productivity. The advocate of this theory was Friedman (1978), who argued that raising tax revenue either through increasing tax rates or tax base would lead to more fiscal space which will drive growth, by (Dzingirai Canicio, Tambudzai Zachary, 2014).

In the Nigerian economy public revenue had positive effects of promoting economic growth, the study pointed out that oil revenues in the economy was of very significant amount, so the government should revise its macroeconomic policies to improve efficiency in natural

resource allocations in the economy. Besides government should reexamine its non-oil revenue by increasing tax rate and introducing new taxes in such a way that it does not distort the working of the economy. This study examined the years between 1980–2008 and used the OLS model, F-test and t-test, by (Jegede, 2014)

In addition to these two hypotheses, the view of Solow (Solow, 1956) in his neoclassical growth model was that there is no long run impact of government expenditures on economic growth rate. The neo-classical growth models suggest that fiscal policies cannot bring about changes in long-run growth of output. Neo-classical economists suggested that the long run growth rate is driven by population growth, the rate of labor force growth, and the rate of technological progress which is determined exogenously. Wagner (1883) suggested that government expenditure is an endogenous factor or an outcome, but not a cause of economic development. Mathematically, his hypothesis can be formulated as, Gt = f(Yt), where G refers to the size of the public sector which reflect the level of government expenditure and Y stands for the level of economic performance or growth. In modest words, Wagner's law suggested that government expenditure increase because of the economic growth that were stated by (Hasnul, 2016).

Bounds testing procedure is a powerful statistical tool in the estimation of level relationships when the underlying property of time series is entirely I (0), entirely I (1) or jointly co-integrated. Bounds testing as an extension of ARDL modelling uses F and t-statistics to test the significance of the lagged levels of the variables in a unilabiate equilibrium correction system when it is unclear if the data generating process underlying a time series is trend or first difference stationary. Empirical analysis shows that these macroeconomic variables have a highly significant level of relationship with the exchange rate irrespective of the underlying properties of their series. The conditional level relationship model and the associated conditional unrestricted error correction model (ECM) in the long-run and short-run relate crude oil prices negatively and inflation rate positively with exchange rate. The long run speed of adjustment to equilibrium reveals that exchange rate in Nigeria is slow to react to shocks on crude oil prices and inflation rate (Lawal Ganiyu Omoniyi, Aweda Nurudeen Olawale, 2015). The study was conducted on Serbia economy by (Lojanica, 2015) with the title of Government Expenditure and Government Revenue – The Causality study on the Republic of Serbia. Monthly data from M12003 to M112014 was used to investigate the co-integration and Granger cause between variables, used ARDL model and Granger causality test. Also, the analysis has shown that, in the long run, there is a unidirectional causality moving from government expenditure towards government revenues.

# 3. Methodology

The study is conducted by using time series data from secondary sources. There are time series data models to make an empirical study. It also studies the relationship between government revenues and expenditures. Augmented Dickey-Fuller (ADF) test is used to find the stationary variables. To investigate the relationship, it applied Ordinary least square (OLS) model because both time series are stationary at level, I (0). The characteristics of the best regression model are as follow;

- $\triangleright$  R<sup>2</sup> value must be high
- residual should not have serial correlation
- residual should be normally distributed
- regression have no heteroskedasticity

The R<sup>2</sup>value will be obtained from OLS regression. Based on OLS regression result, serial correlation will be checked by using Serial Correlation LM test, and Histogram Normality test is applying to trace normal distribution in the model.

In this study, government revenue, government expenditure and GDP growth are also considered to analyze co-integration between them by using suitable time series model. According to the feature of time series model, unit root testing is applied to those three variables, and the fitted model determines to find out co-integration among the variables. Then, Granger causality test is used because the study intend to examine existence of causality among the variables. Many scholars agreed that unit root is a fundamental test to continue finding relations between the variables, and the results from unit root testing enable to choice of the fitted model from the chosen time series data. Thus, the study applies ARDL bound test to investigate the co-integration among variables, because unit root test examines that government revenue (GR) and government expenditure (GE) series are stationary at the integrated level, I (0) and GDP at the first difference, I(1). According to Dave Giles, the ARDL/Bounds Testing methodology of Pesaran and Shin (1999) and Pesaran *et al.* (2001) has a number of features that pursued many researchers to give it some preference over conventional co-integration testing. For instance:

- It can be used with a mixture of I (0) and I (1) data.
- It involves just a single-equation set-up, making it simple to implement and interpret.
- ➤ Different variables can be assigned different lag-lengths as they enter the model.

The following steps are suggested to conduct in ARDL bounds test model

➤ Make sure than none of the variables are I (2), as such data will invalidate the methodology.

- Formulate an "unrestricted" error-correction model (ECM). This will be a particular type of ARDL model.
- Determine the appropriate lag structure for the model in step 2.
- Make sure that the errors of this model are serially independent.
- ➤ Make sure that the model is "dynamically stable".
- ➤ Perform a "Bounds Test" to see if there is evidence of a long-run relationship between the variables.
- ➤ If the outcome at this step is positive, estimate a long-run "levels model", as well as a separate "restricted" ECM.
- ➤ Use the results of the estimated models to measure short-run dynamic effects, and the long-run equilibrating relationship between the variables.<sup>4</sup>

#### 3.1 Model

The study is to investigate the short-run and long-run co-integration between Government expenditure (GE), government revenue (GR) and GDP growth (Gross Domestic Product) in Myanmar. The constructed model is as follow

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GR= g +b GE (1)

GDP= c +a GE + a<sub>1</sub>GR (2)

GDP = Gross Domestic Product

GE= Government Expenditure

GR= Government Revenue

g and c = Constant

b,a and a<sub>1</sub>= coefficient variables
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The constructed equation (1) examines the relationship between government revenue (GR) and expenditure (GE), where GE and GR is are explanatory variable and explained variable. The equation (2) investigates the co-integration and long-run relation in the time series variables which are GDP growth (GDP), government revenue and government expenditure in which government revenue and government expenditure are explanatory variables and GDP is an explained variable.

<sup>&</sup>lt;sup>4</sup> Econometrics Beat: Dave Giles' Blog: ARDL Models - Part II - Bounds

# 4. Empirical Results

Government revenue and expenditure time series data are from various issues of central statistical organization books of Myanmar year (CSO). The GDP growth series is collected from World Bank data sources. Unit root test is performed using the time series data to find the stationary and non-stationary series and to avoid the spurious regression. ADF test is applied to test the unit root from the data.

Table (1) Unit Root Test Result

Variables	Critical value at1%, 5%,10%	T-statistics	P(Value)	Significance
GE	-3.711457 -2.981038 -2.629906	-5.463404	0.0001	Stationary
GR	-3.711457 -2.981038 -2.629906	-5.820000	0.0000	Stationary
D(GDP)	-3.724070 -2.986225 -2.632604	-6.785775	0.0000	Stationary
GDP	-3.711457 -2.981038 -2.629906	-2.300856	0.1791	Non-Stationary

<sup>\*</sup>MacKinnon (1996) one-sided p-values. All results based on constant

Based on ADF unit test in table (1), GE and GR are stationary at I (0) meaning that both are stationary at 5% level. GDP is I (1) variables meaning that without taking first difference to GDP will not be stationary series. D (GDP) is stationary at 5% level. It is concluded that GE and GR are I (0) variables and GDP is I (1) variable.

In the table (2), the OLS regression result and other supported tests are written down. It is based on equation (1) to investigate the relationship between GE and GE. The result show that the GE has positive relation to GR meaning that 1 percent increase in government expenditure leads to 92 percent increase of government revenue according to the equation the GE = 0.0318104175947 + 0.853320730985 \* GR. To be the best regression Serial Correlation LM Test, normality test and Heteroskedasticity Test are applied step by step. The hypothesis of the tests are as follows

#### Serial Correlation LM Test

H<sub>0</sub>: there is no serial correlation

H<sub>1</sub>: there is serial correlation

The result accepts H because the probability value is more than 5 percent.

# Normality test

H<sub>0</sub>: the data is normally distributed

H<sub>1</sub>: the data is not normally distributed

According to Jarque-Bera statistics, the result is good for the equation (1) because the probability value is more than 5 percent. So  $H_0$  is accepted

# ➤ Heteroskedasticity Test

H<sub>0</sub>: the model have no Heteroskedasticity

H<sub>1</sub>: the model have Heteroskedasticity

Based on Breusch-Pagan-Godfrey test result, H is accepted for the model. It is also good for the OLS model.

Table (2) OLS Model results

Variables	Coefficient	t-Statistic	Prob.	
С	0.025188	0.7671	0.4502	
GR	0.929713	9.796607	0.000	
R-squared	0.793343			
Adjusted R-squared	0.785077			
F-statistic	95.9735			
Prob(F-statistic)	0.0000			
Serial Colleration LM Test				
F-statistic	1.635834	Prob. F(2,23)	0.2167	
Obs*R-squared	3.362368	Prob. Chi- Square(2)	0.1862	
Normality Test				
Jarque-Bera	0.434		0.805	
Heteroskedasticity Test: Breusch-Pagan-Godfrey				
F-statistic	2.13E-05	Prob. F(1,25)	0.9964	
Obs*R-squared	2.30E-05	Prob. Chi- Square(1)	0.9962	
Scaled explained SS	2.21E-05	Prob. Chi- Square(1)	0.9963	

In table (2) the lags selection is undertaken by Akaike information criterion (AIC) and Schwarz information criterion (SIC) because the model assumed the lowest AIC supports to be fitted the regression. In the estimated regression the numbers of five lags have been chosen and the value of AIC is 1.9. R<sup>2</sup> and Adjusted R-squared values in the model is a good fit because the value is 90% of the variations.

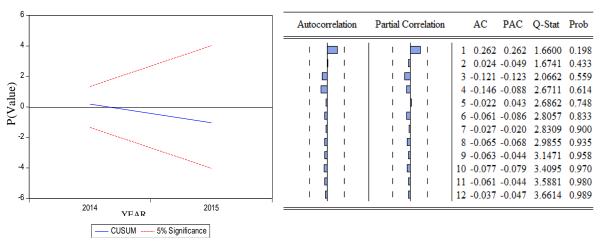
**Table (3) Estimated Coefficients of ARDL bound Test** 

Variables	Coefficient	P -Value	t-Statistics
D(GDP(-1))	0.599431	0.0556	4.062426
D(GDP(-2))	0.753705	0.0543	4.114086
D(GDP(-3))	0.386186	0.0812	3.292489
D(GDP(-4))	-0.10424	0.3649	-1.16272
D(GDP(-5))	-0.057	0.5421	-0.7284
D(GR(-1))	153.4828	0.0201	6.948217
D(GR(-2))	118.5951	0.0226	6.534719
D(GR(-3))	59.21541	0.0399	4.856822
D(GR(-4))	24.01234	0.0938	3.031394
D(GR(-5))	12.08874	0.11	2.760224
D(GE(-1))	-186.561	0.0179	-7.3813
D(GE(-2))	-145.487	0.0193	-7.08559
D(GE(-3))	-92.4584	0.0234	-6.42139
D(GE(-4))	-50.4658	0.026	-6.07819
D(GE(-5))	-24.3236	0.0318	-5.47133
GDP(-1)	-0.33254	0.0606	-3.87576
GR(-1)	-164.959	0.0208	-6.82085
GE(-1)	208.7229	0.0175	7.452975
С	-10.4528	0.0288	-5.76722
$R^2$		0.980892	
Adjusted R-squared		0.808919	

In the figure (4) Serial Correlation LM test is conducted to capture Heteroskectricity problem in the regression, which results there is no serial correlation in the model that is good sign for the model because the spikes are within the bound. CUSUM test in the figure (5) also explains the regression as stable at 5% level, which is good sign also, explaining that the model has no serial correlation and is a stable model.

Figure (4) CUSU Test

Figure (5) Serial Correlation LM test



According to Wald test, F-statistics is applied to decide co-integration existence between the variables. In the table (4) Wald test is therefore computed in given equation (2),

the value of F-Statistics as 22.17 which is greater than the given lower bound and upper bound values. The hypothesis of the Wald test is that, the value of F-statistics in the test result should be greater than Pesaran Critical value, lower bound and upper bound values at 5% level in the table, which means the model is an unrestricted intercept and no trend. The results show that the GE, GE and GDP growth are long run variables meaning that they move together in the long run. Co-integration also exits between those variables.

**Table (4) ARDL Bound Test** 

Lower Bound Value	Upper Bound Value	Critical Value
4.25	6.13	1%
3.16	4.79	5%
2.74	3.62	10%

Notes: Computed F-statistic = 22.17207 (with lags, k = 5). The upper and lower bounds were obtained using unrestricted intercept with no trend. The critical values are obtained from Pesaran et al. (2001), table CI (iii).

In the summary of the result, the estimated coefficients are presented: according to table (4), the GR has short run positive influences to GDP growth and negative impacts in the long run. The GE have negative relation to GDP growth and positive relation to GDP in the long run.

Table (5) Granger-Causality Test

Null Hypothesis:	F-Statistic	Prob.
GE does not Granger Cause GDP GDP does not Granger Cause GE	0.11991 0.54025	0.9729 0.7090
GR does not Granger Cause GDP GDP does not Granger Cause GR	0.34414 0.14085	0.8434 0.9639
GR does not Granger Cause GE GE does not Granger Cause GR	4.24892 3.78657	0.0186 0.0274

The Granger test is shown in the table. The hypothesis can be denied if the probability value exceed 5%, unless the hypothesis in the model is acceptable. So. GE does not granger cause to GDP, GDP does not cause GE, GR does not Granger Cause GDP and GDP does not Granger

Cause GR hypotheses are acceptable because their probability values are greater than the 5% level. GR does not Granger Cause GE and GE does not Granger Cause GR hypotheses are denied because they are significant at 5% level meaning that the more the government expenditure leads to the more revenue and the large revenue is from the increased in expenditure.

#### 5. Conclusion

How do Government revenue and expenditure affect GDP growth in Myanmar? Does government expenditure rise with raising revenue in Myanmar? To answer these questions, the theoretical and empirical study has been implemented. Choosing the time series models for related series variables, step by step empirical analysis is conducted. The result of unit root OLS estimation is conducted by equation, which explains that the GE has positive relation to GR meaning that 1 percent increase in government expenditure leads to 92 percent increase of government revenue. Then, for the equation (2), the variables are stationary at mix levels resulted by Unit root test but many scholars suggest that ARDL-bound test model is suitable model for I (0) and I (1) time series variables to trace short-run and long-run co-integration. The model explain, GE, GR and GDP variables as having long-run relationship, which means they move together. To test the causality, Granger causality test is applied, which explains that GE and GR cause each other in granger causality test. The study suggests that government expenditure positive relation to GDP growth in the long run and negative relation in short run. The revenue is positively related to GDP both short-run and long-run in the model. Descriptive study examines how capital receipts and expenditure cause GDP growth rate. The study also found that law and regulation reforms mainly impact GDP growth; capital expenditure should be gradually reduced to make privatizations, and government should revise investment laws and regulations.

# **5.1 Suggestions for Further Study**

The above study uses time series variables for the time period 1989 to 2015. A further study should add longer time period and consider political situations also by creating dummy variables. This will make the result stronger for making decisive, policy recommendation.

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