

JOURNAL OF THE MYANMAR ACADEMY OF ARTS AND SCIENCE



**Economics, Journalism,
Tourism and Law**

Vol. XVIII, No.8, July, 2020

Myanmar Academy of Arts and Science

Journal of the Myanmar Academy of Arts and Science

Vol. XVIII, No.8

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Edition

2020, July, 500 Copies

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Ministry of Education

Published by

Dr Aung Min (00322) Chairman, Journal Publication Committee,
Myanmar Academy of Arts and Science

ISSN 2520-0186
LCCN 2003-323143

Printed by

U Win Aung (00171), Manager,
Universities Press, Yangon, Myanmar

ANALYSIS ON THE EFFECTS OF ECONOMIC AND SOCIAL EXPENDITURE ON ECONOMIC GROWTH IN MYANMAR (1980-2014)*

Naw Htee Mue Loe Htoo¹

Abstract

This study analyzes the effects of economic and social expenditure on economic growth in Myanmar and formulates an appropriate policy implication for improving the limited financial resources in order to achieve economic growth in Myanmar. Using secondary data covering the period 1980 to 2014, the study applies the Economic Analysis of Time Series and the Dynamic Model of ARDL (Auto Regressive Distributed Lag Model) as the main analytical tools to investigate the effect of public expenditure on economic growth. Several notable findings are obtained from this study. Firstly, the result reveals that all expenditure components and economic growth are co-integrated and they establish a long run equilibrium relationship. Secondly, this study finds that, the economic expenditure such as spending on agriculture, infrastructure, and spending on processing and manufacturing sectors properly achieved the outcomes of economic growth in the short run thereby boosting the larger impact on the long run economic growth. In the third, this study discovers that social spending such as spending on health sector significantly contributes to promoting on economic growth not only in the short run but also in the long- run. On the other hand, spending on education does not capable to generate the direct effect on improving productivity and more than that, it does not contribute to the long run effect on economic growth. Based on these findings, the study provides for the policy implications that spending allocation should be more concentrated on the direct productive activities than indirect productive activities. Besides, spending allocation should be based on efficiency and effectiveness in allocation process. Moreover, a well-defined expenditure policy that pursued effective management of resources in the development process is needed to consider. Finally, it should be ensured budgeting in term of the coordination between the development plan objectives and the budgetary process.

Keywords: Public Spending; Economic and Social Expenditure; Economic Growth; Budget, Fiscal Policy, Auto Regressive Distributed Lag Model; Time Series Analysis.

Introduction

There is no doubt that the fiscal instruments became an essential tool to create opportunity for widening the base at which developing countries could grow with a sense of urgency. Among fiscal instruments, government spending is very important instrument for developing countries to achieve accelerated economic growth and sustainable development. In this regard, studying empirically the impact of government spending on economic growth has paramount importance to draw important policy implications among developing countries.

Myanmar is one of the developing countries and it is also ASEAN member countries. Currently, Myanmar is undergoing macroeconomic adjustment and struggling for its economic development with a new transition to abreast with other countries. To achieve development, it is realized that without the supportive factor of the public spending, the policy for development cannot be achieved. In fact, theory related to public spending described that the relationship between government and economic growth has not been without controversy.

By examining the past economic history of Myanmar, at one time before 1988, Myanmar exercised a planned economy where the size of government expenditure had increased with a

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* Best Paper Award Winning Paper in Economics (2019)

slow process during the years of the planned economy. After abandoning of the central planning economy, Myanmar started to adopt the market-oriented economy in 1989 with the efforts of the government SLORC; later it was known as SPDC after 1997 up to 2011. Then USDC government took place and moved the economy toward the transition to parliamentary democracy. Presently, with the new government NLD, Myanmar is now moving to parliamentary democracy.

The fact here is that to introduce the market oriented economy, there were many reforms in every sectors are badly needs for Myanmar to drive the economy to be line with the new market economy in that period. This fact leads to the role of government to become prominent in implementing and establishing of the market economy. The government had undertaken a serious of comprehensive reforms to achieve smooth transition and large functions of and then growing government has to place on better economic performance. However, how much public spending that had been used effect on growth and then to support development; it is important to analyze the using of public expenditure. It is also needed to monitor the linkage between trends in the levels and composition of government expenditures, and to assess the causes of this change over time. Moreover, it is even more important to investigate the effect of relative contributions of various expenditures to economic growth. In this way, the outcomes will provide us an important information for more efficient targeting of using limited resource and even often declining financial resources in the future of Myanmar. For this reason, this study addresses those issues and tries to analyze the impact of public spending on economic growth by using the national data.

Objectives of the Study

The objectives of the study are to investigate whether the economic and social expenditures contribute to economic growth in Myanmar and then to formulate an appropriate policy implication for improving the limited financial resources to achieve economic growth of Myanmar.

Scope and limitation of the Study

This study emphasizes mainly on economic spending and social spending. The economic spending includes spending on agricultural sector, infrastructure and processing and manufacturing sector. The social spending consists of spending on education and health sectors. The classification of the types of spending is based on not only theories but also based on the definition of the World Bank and IMF. Due to data biased, the analysis of this study covers only the period from 1980 to 2014.

Method of Study

This study explores two main empirical analyses. The first analysis tries to investigate the impact of economic spending on economic growth and the second analysis examines the effect of social spending on economic growth. With respect to the methodology, this study employs (i) the econometric model of Time Series Analysis, (ii) Bound Test to Cointegration of ARDL Approach, (iii) Error Correction Method of Auto Regressive Distributed Lag model (ECM of ARDL) and (iv) the Diagnostic Tests.

(i) Time series analysis

Firstly, this study employs the econometric model of time series analysis because before proceed to the analysis by using ARDL model, it is necessary to check whether the series are stationary or non-stationary since the non-stationary of time series data causes an enduring problem in empirical analysis. To avoid estimating and getting spurious results, the study intends to conduct the test for stationary. All variables in this study are tested for stationary using Augmented Dicky- Fuller (ADF) test, look out for stationarity, and establish the order of integration.

(ii) Bound Test to Co-integration of ARDL Approach

In order to determine whether there is a long run equilibrium relationship among the unit root variables in a given model, the bound testing of the ARDL approach is used. The estimators for the bound test are expressed as follow.

$$\Delta Y_t = \beta_0 + \sum \beta_i \Delta y_{t-i} + \sum \gamma_j \Delta x_{1t-j} + \sum \delta_k \Delta x_{2t-k} + \theta_0 y_{t-1} + \theta_1 x_{1t-1} + \theta_2 x_{2t-1} + e_t$$

The null hypothesis (H_0): $\theta_0 = \theta_1 = \theta_2 = \theta_3 = 0$ which implies that there is no co-integration

The alternative hypothesis (H_1): $\theta_0 = \theta_1 = \theta_2 = \theta_3 \neq 0$ which indicates there is co-integration. The rule for the bound test is that if the computed F-value is greater than the upper critical value, the null hypothesis is rejected and the conclusion is that there is a co-integrating relationship between the variables.

(iii) ARDL Model: Auto Regressive Distributed Lag Model

Then, in order to empirically analyze the impact of government spending on economic growth for the two analyses, the dynamic econometric model of ARDL (ECM of Auto Regressive Distributed lag Model) is applied for each analysis in this study. The general form of equation of ARDL (p,q) model followed by this study is as follows.

$$y_t = \beta_0 + \beta_1 y_{t-1} + \dots + \beta_p y_{t-p} + \alpha_0 x_t + \alpha_1 x_{t-1} + \alpha_2 x_{t-2} + \dots + \alpha_q x_{t-q} + \varepsilon_t$$

The basic form of ARDL model is characterized by having lags of the dependent variable as well as lags of other variables, as the regressors. A dependent variable, y, and the explanatory variables are x_1 and x_2 .

(iv) Diagnostic Tests

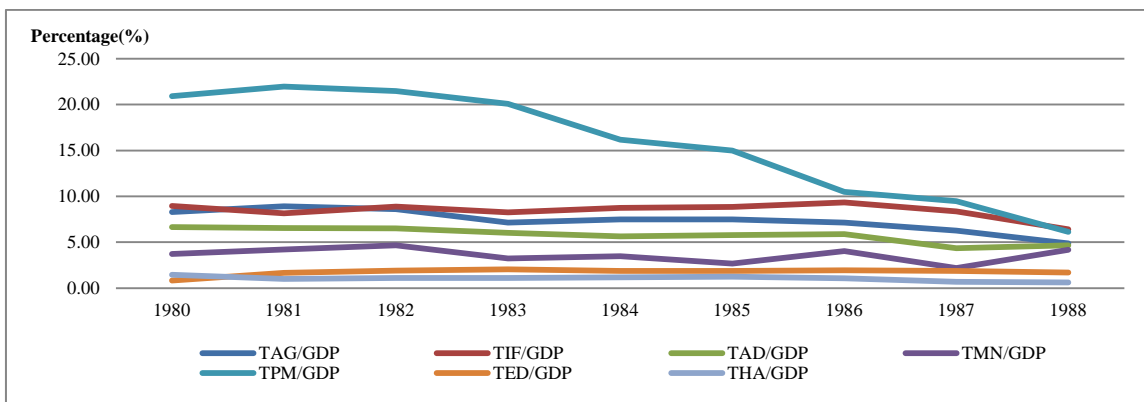
After the estimation of the model, the Residual Diagnostic Tests are needed to determine whether the model has the goodness of fit, stability and efficiency. Therefore, the diagnostic tests namely LM- test, Heteroskedasticity test, Ramsey RESET test, Normality Test and Stability Test are utilized to examine the results of the estimated model.

Source of Data

This study uses secondary data and they are collected from the annual reports of Financial, Economic and Social Conditions released from the Ministry of National Planning and Economic Development (*MNPED*). Moreover, the related theories and the empirical studies relevant to this study are obtained from various sources such as libraries, reference books, and internet websites.

The Size and the Patterns of Public Spending in Various Components of the Economy (1980-1988)

The period 1980 to 1988 was followed by the end of the Fourth Four-year Plan (1982/83 - 1985/86) and the Fifth Four Year Plan (1986/87-1989/90). During the Socialist era, the government wished to define the long-term objectives of the plan and to establish priorities, ideology, economic strategy and techniques, and to adopt appropriate economic policies. The plan intended to increase in output of agriculture, livestock and fishery with two times, forestry and mining with one half times, transport and communication with four times, manufacturing and processing and power six times. The main expectation was that the economic structure of the country would be transformed from an agricultural country to an agriculture-based industrial country. This fact led to the role of government to become a conspicuous in uplifting the economy and the share of spending had distributed based on the relative importance of each economic sector in the economy. Figure (1) shows the size, trends and patterns of government spending in various component of the economy during the last fourth and fifth four years plan of socialist era from 1980 to 1988.



Source: Calculation based on the secondary data from Annual Reports of Financial, Economic and Social Conditions (MNPED)

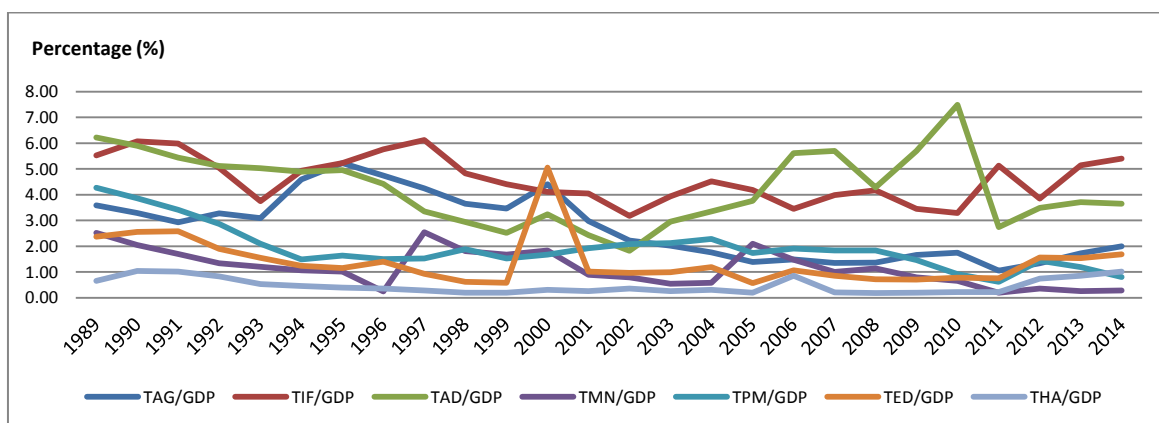
Figure 1 The Size of Public Spending in Various Component of the Economy (1980-1988)
(Spending as a percentage of Real GDP)

Among the sectors, manufacturing and processing sector received the lion share of spending then followed by agricultural sector and infrastructure. The share of public spending on manufacturing and processing sector was over 20% of GDP which was the highest share from 1980 to 1983. After that, the share of spending had been decreasing over the years. On the other hand, the share of spending on infrastructure and agriculture received at around at 9 % of GDP while the share of spending on education and health was relatively low as compare to the share of other sectors.

The Size, Trends and Patterns of Public Spending in Various Components of the Economy (1989-2014)

The period after 1989 was known as the SLORC (the State Law and Order Restoration Council) and later it was named as SPDC (State Peace and Development Council) in 1997. The government laid down economic, political and objectives and tried to build a nation as all round development of the nation under a market oriented system in order to establish a modern

developed nation. A long with these objectives, the government laid down the annual plan again and put an effort to upgrade the development of each economic sector of the economy. Correspondingly, the share of spending on each economic sector has been increasing substantially in those periods. Figure (2) elaborates the changes of the sizes and trends of public spending on various components of the economy over years, from 1989 to 2014.



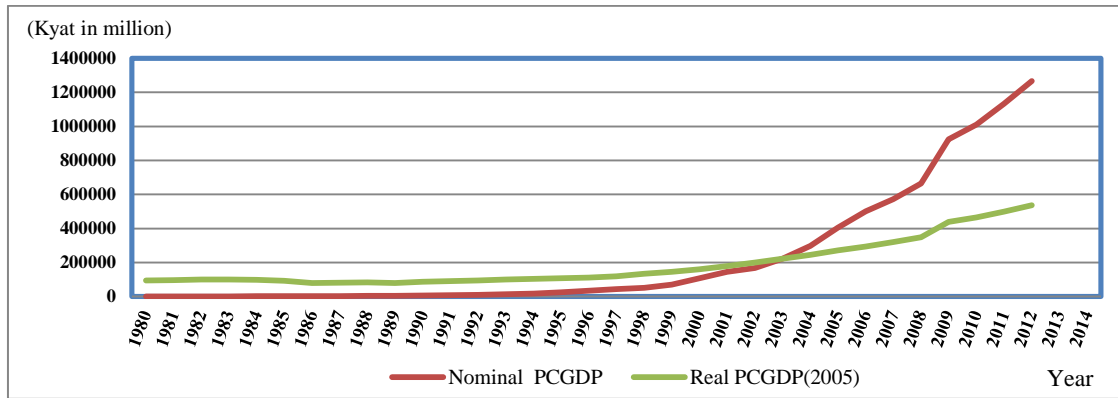
Source: Calculation based on the secondary data from Annual Reports of Financial, Economic and Social Conditions (MNPED)

Figure 2 The Size of Spending in Various Components of the Economy (1989-2014) (Government spending as a percentage of Real GDP)

The figure demonstrates that the emphasis given by the government on the development of agriculture was not only a move in the right direction but was also in line with a market-oriented policy. Moreover, to build a modern developed nation, to achieve balanced regional development for all state, to promote the peace and tranquility in the country and to stabilize and revitalize of the economy; the massive development had been made immensely under SPDC period with increasing used of spending and investment in each sector. However, since the level of available government revenues was too low to support the spending needed, this fact became key challenges to finance for economic development. Thus, the patterns of spending allocation from 1989 to 2014 obviously shows that the allocation patterns are mostly based on government’s priorities and objectives. The top two sectors receiving expenditures were administrative sector and infrastructure sector. Both sectors received the lion’s share of spending allocation overtime. On the other hand, the share of public spending received by agricultural sector has been increasing gradually in those periods as well. The size of spending in term of ratio of spending to GDP was relatively high in sectors such as agriculture, infrastructure and administration. However, as compared to the other sectors, the ratio of spending to GDP was relatively low in the social sectors such as education and health. Similarly, the spending share of mining, and processing and manufacturing was smaller than the share of other sectors.

Overview of Economic Performance: GDP and Annual Growth Rate of GDP (1980-2014)

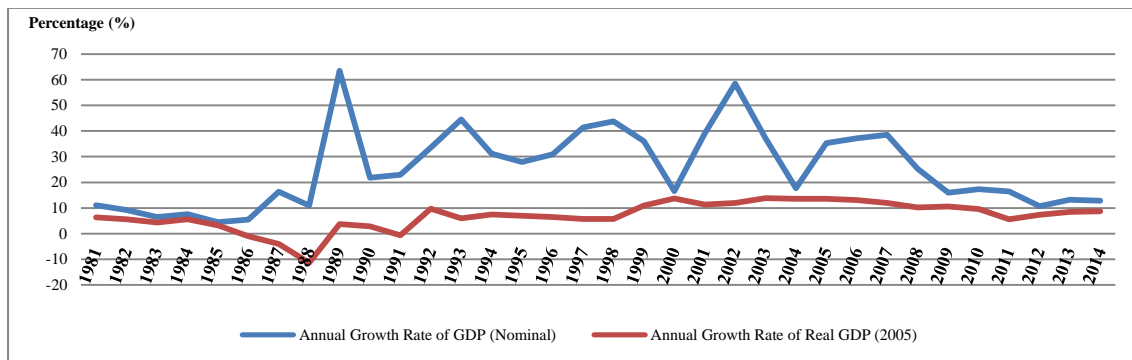
Figure (3) reflects the economic performance of Myanmar in term of per capita GDP from 1980 to 2014. This seems impressive, however, in real term; the real per capita GDP was lower than nominal per capita GDP. Real per capita GDP did not increase substantially as much as its nominal value despite it had increasing trend.



Source: Calculation based on the secondary data from Annual Reports of Financial, Economic and Social Conditions (MNPED)

Figure 3 The Trends of Economic Performance in Term of Nominal and Real Per Capita GDP (1980-2014)

Figure (4) describes annual growth rate of GDP in terms of nominal and real GDP from 1980 to 2014. An annual growth rate of real GDP has negative growth rate in some years during the near end of socialist periods in 1986 at -1.06%, in 1987 at -4% and in 1988 at -11% respectively. Those periods reflected at the near end of the socialist era and those negative growth rates corresponded to the severe political and economic instability. Since the economy was extremely in a bad shape, which pulled down the GDP to negative growth rate. Further, an annual Growth Rate of real GDP has negative growth again in 1991 at -0.6% percent. Because of the low saving and investment, inflation and resource gap from the period after 1989, the negative growth rate appeared again in 1991. Overall, annual growth rate in term of real GDP had not risen substantially.



Source: Calculation based on the secondary data from Annual Reports of Financial, Economic and Social Conditions (MNPED)

Note (1):The annual series of nominal GDP is converted to the real GDP by using 2005 as a base year.

Figure 4 Annual Growth Rate of GDP in Terms of Nominal and Real GDP (1980-2014)

Related Theories and Theoretical Framework for Analysis

In order to assess the impact of public spending on economic growth in Myanmar from 1980 to 2014, this research follows the theoretical framework of the Keynesian Model. The model implies that an expansion of government expenditures accelerate economic growth. The Keynesian Theoretical Framework is expressed as:

$$\text{Aggregate Demand: (AD): } \text{GDP} = C + I + G + (X - M)$$

C denotes total consumption expenditure. I denotes total investment expenditure. G stands for the total government expenditure. X-M refers to total value of Net export and import. Among the Keynesian expenditure components, one of the components of government expenditure (G) is the key interested variable in this study and the dynamic effect of G on GDP will be observed and explored in this study. Thus, the main part of Theoretical Framework for analysis generally can be expressed as;

$$GDP_t = f (GEXP_t)$$

Where: GDP_t= Gross Domestic Product

GEXP_t = Government Expenditure in each sector and t= year

Conceptual Framework for the Analysis

Based on the theoretical framework, this study constructs the conceptual framework for examining the impact of economic and social expenditures on economic growth as follow.

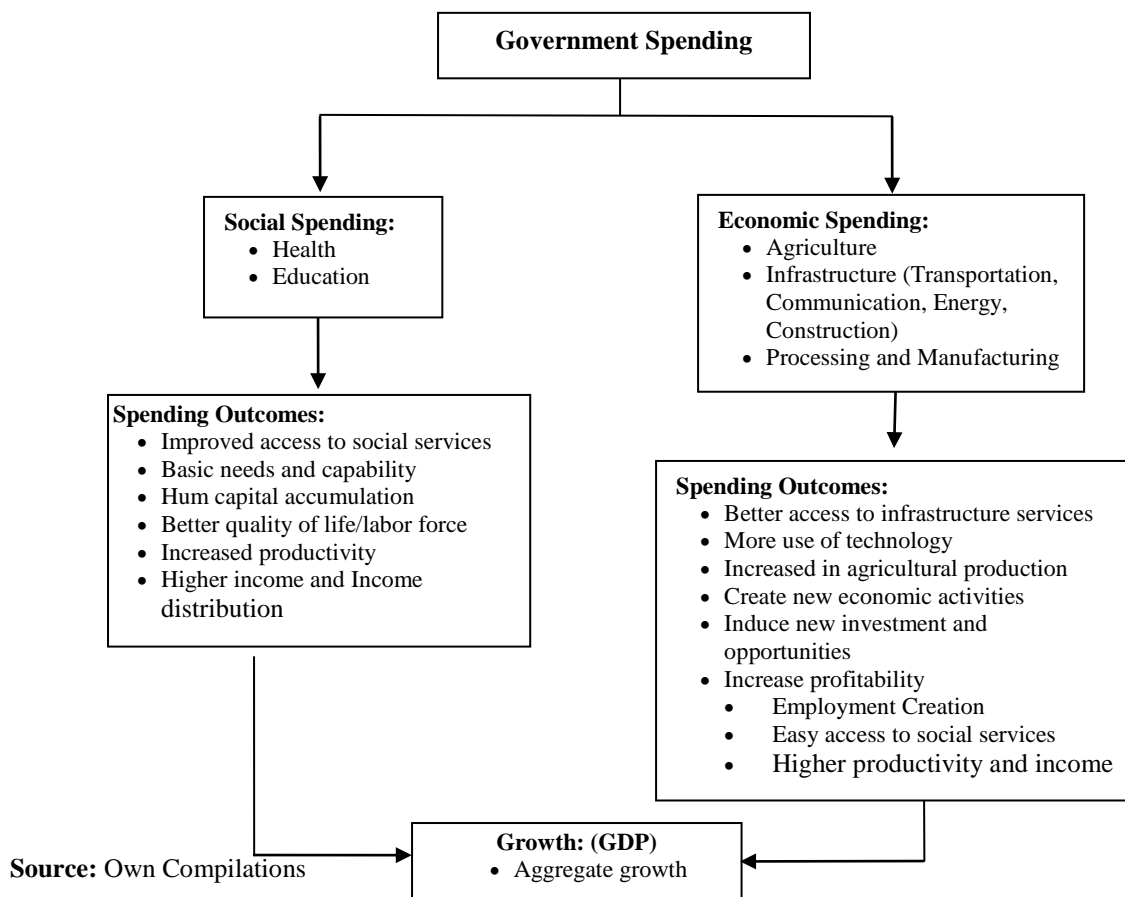


Figure 5 Framework for the Analysis of the Impact of Public Expenditures on Economic Growth

According to the analytical framework, public spending namely economic expenditure and social expenditure effects a country’s economic growth through many different channels. The framework implies that the outcomes of the total expenditures of government that are allocated by each sector play very important role for economic development.

The Empirical Analysis

I. The First Analysis on the Estimation of the Impact of Economic Spending on Economic Growth (1980-2014)

The first analysis is to investigate the impact of economic spending namely spending on agricultural sector, infrastructure, processing and manufacturing sector on economic growth. In order to analyze the impact economic spending on growth, the study designates the dependent variable as real per capita GDP ($LNRPCGDP_t$), which is a proxy of economic growth, and the independent variables are the spending on agricultural sector ($LNTAG_t$), spending on infrastructure ($LNTIF_t$), and spending on processing and manufacturing sector ($LNTPM_t$). In this analysis, the two dummies D_{Stru} and D_{2000} are included. One dummy is D_{Stru} , which figures out the effect of structural change after 1989. The reason for including this dummy is that to see whether there is the effect of market-oriented economy contributed to the economic growth via spending allocation. Another dummy is D_{2000} and it generally denotes the economic spending that has been increasing after the year 2000, and the effect of this dummy is taken into account in this model. Moreover, government total consumption expenditure (LNC_t) is used as a control variable in this model because which can also indirectly effect on economic growth through spending allocation.

Moreover, in order to observe the changes of slope of the trend of GDP due to the change in spending in some significant year, the interaction term between spending and the year that has significant feature is also tested by using slope dummy. However, the effect of the interaction term causes the residual serial correlation among the series. Therefore, this variable is dropped so that which can improve the relationship between the dependent and the dynamic regressors. After fitting all the variables, unit root testing, lag-structure determination and bound testing are done for the first analysis. Then, the ARDL model is employed in the estimation for the first analysis. The results of short run and long run effect of the first analysis is presented in table (1).

Table 1 The Results of the ARDL Long Run and ARDL-ECM Short Run Dynamic Adjustment between Economic Spending and Economic Growth (1980-2014)

The Short Run Effect of Economic Spending on Economic Growth				
Dependent Variables: LNRPCGDPt				
Independent Variables	Coefficient	Std error	T Statistics	Prob.
$\Delta LNPCGDP_{t-1}$	0.664483***	0.082067	8.096800	0.0000
$\Delta LNTAG_t$	0.112287***	0.027967	4.014957	0.0009
$\Delta LNTAG_{t-1}$	0.062845**	0.024832	2.530793	0.0215
$\Delta LNTIF_t$	0.065004**	0.024637	2.638415	0.0173
$\Delta LNTIF_{t-1}$	-0.107993***	0.028891	-3.737976	0.0016
$\Delta LNTPM_t$	0.031630	0.020294	1.558623	0.1375
ΔLNC_t	0.078876**	0.029715	2.654460	0.0167
ΔLNC_{t-1}	-0.320810***	0.041469	-7.736043	0.0000
ΔD_{Stru}	0.159748***	0.024149	6.615201	0.0000
D_{2000}	0.036808	0.021744	1.692788	0.1087
$D_{2000t-1}$	-0.097890***	0.028285	-3.460867	0.0030
ECT_{t-1}	-0.359448***	0.048450	-7.419018	0.0000
(Cointeq = $LNPCGDP(0.1955*LNTAG+0.4007*LNTIF+ 0.1141*LNTPM +0.1636*LNC +0.4297*D_{Stru}+0.3732 D_{2000}^*)$)				

The Long Run Effect of Economic Spending on Economic Growth				
Independent Variables	Coefficient	Std error	T Statistics	Prob.
<i>LNTAGt</i>	0.195458**	0.069811	2.799812	0.0123
<i>LNTIFt</i>	0.400732***	0.115193	3.478769	0.0029
<i>LNTPMt</i>	0.114080**	0.050661	2.251829	0.0378
<i>LNCt</i>	0.163622**	0.071707	2.281813	0.0357
<i>DStru</i>	0.429727***	0.099595	4.314750	0.0005
<i>D2000</i>	0.373246***	0.078917	4.729597	0.0002

Source: Author calculation

Note: (1) ***, **, * represent the p-values are significant at 1%, 5% and 10% level, respectively

Note (2): Unit root testing, Bound test and ARDL model for the first analysis is presented in Appendix (ii), (iii) (A) & (iv) (A), respectively.

The main variable the error correction term (ECT_{t-1}) in table indicates the speed of adjustment which restores the equilibrium in the dynamic model. The coefficient of ECM- (λ) shows how quickly or slowly variables return to equilibrium, and it should have a statistically significant coefficient with a negative sign. The result in table reported that the p-value of (ECT_{t-1}) is highly significant at 1% and the estimated coefficient of the error correction term (ECT_{t-1}) has expected negative sign. Moreover, the magnitude of estimated coefficient of (ECT_{t-1}) is equal to (-0.359448), which suggests that the deviation from the long-term path is corrected by 36% after one period shock over time. This implies that any disequilibrium between the economic spending and real per capita GDP can be corrected and thus the adjustment process restores back the real per capita GDP to its initial position. This indication strongly shows the expected result.

Among the variables, firstly, the last year value of real per capita GDP supports to the current year value of real per capita GDP since its p-value is significant at 1% (0.0000) and it has positive sign. Hence, a one percent increases in the last year real per capita GDP causes the current year of real per capita GDP to increase at 0.7%.

With regard to spending on agriculture, both p-value of estimated short run parameter and p-value of long run coefficient of spending on agriculture are strongly significant at 1% and 5% level respectively with positive influence on economic growth. More specifically, in the short run, a one percent increase in the current-year expenditure on agricultural sector leads to a 0.11% increases in economic growth and a one percent increase the previous year expenditure on agriculture causes the 0.06% increase in economic growth. While the long run effect shows that a one percent increase in expenditure on agriculture contributes to a 0.20% increase in economic growth in the long run. The result strongly shows that there is a positive significant relationship between the government expenditure on agriculture and economic growth not only in the short run but also in the long-run. In this case, the result shows that the effect of long run agricultural spending is larger than the short run effect. This fact implies that the performance of the agricultural sector as a whole from 1980 to 2014 including both periods of a part of socialist-era and market-oriented economy had been touched upon in connection with the overall performance of the economy.

With respect to spending on infrastructure, both p-values of estimated short run parameter of current year expenditure and p-value of long run coefficient are strongly significant at 5% and 1% level respectively. More specifically, in the short term, a one percent increase in current year expenditure of infrastructure leads to a 0.07% increase in economic growth while the long run

effect shows that a one percent increase in expenditure on infrastructure contributes to a 0.40 % increase in economic growth in the long term. This result shows that there is no small achievement of infrastructure sector in economic growth and it implies that government expenditure on infrastructure properly achieved the outcomes of infrastructure development in the short run thereby boosting the larger impact on the long run economic growth. This finding is similar to some studies such as Ashauer 1989; Devarajan and Vinay 1993; Sutherland et al. 2009. Their studies described that increased expenditure on the main infrastructure such as transport and communication had a powerful explanatory role in economic growth and generated modest economic growth.

However, one surprising results has shown that an increase in the previous year expenditure of both infrastructure and consumption have negative significant relationship to the economic growth in the short run. The possibility is that one year after an increase in infrastructure and consumption spending may cause a temporary inflation only a short period, and in turn, due to the effect of inflation, which may cause a negative influence to the real per capita GDP. Because the portion of spending allocation to infrastructure and household spending on consumption are relatively large as compare to other spending. On the other hands, an increase in spending on these components may cause inflation and this effect possibly crowds out the private investment and in turn leads to a lower GDP in a short period.

With respect to spending on processing and manufacturing sector, the result reported that the p-value of estimated short run parameter of current year expenditure is not significant while the p-value of the estimated long run coefficient is significant at 5% level. By this mean, the spending on processing and manufacturing sector could not generate the short run effect on economic growth. Indeed, the government had been made a number of attempts to improve the processing and manufacturing sector, however, the success were hampered by poor management, low capacity utilization and the shortage of foreign exchange which may be the fact that there is no the short run effect . However, the public investment in this sector contributed to the long run effect on economic growth. The result described that a one percent increase in spending on processing and manufacturing contributed to an increase in GDP at 0.11% in the long-run. Thus, the development of the processing and manufacturing sector can contributed to the long run economic growth.

A dummy (D_{Stru}) that portrays the effect of market oriented economy after 1988/89 contributes to the economic growth. It implies that the effect of market oriented economy contribute to economic growth not only in the short run but also in the long run with a positive relationship. This fact shows that in the long-run the market-oriented economic system contributed indirectly rather than directly to economic growth through the overall effect of changes in the economic spending policy. Moreover, an increase in expenditure after 2000 supports the economic growth to increase in the long run.

To sum up, the result of the first analysis illustrated that the bound test result confirms that all variables such as economic spending and economic growth are co-integrated, they move together in the long –run, and they established equilibrium relationship. Moreover, the highly significant of the error correction term (ECT_{t-1}) is further proofs that the deviation from the long run path can be corrected strongly, and which moves the equilibrium back to the initial equilibrium, and there is an existence of a stable long-term relationship among economic spending and economic growth. Further, the result reported that government-spending allocation

to agriculture, infrastructure and processing and manufacturing sector strongly contributed to both short run and long run positive effect promoting on economic growth.

Table 2 Diagnostic Tests Results of the First Analysis

Sr No.	Tests	F- Statistics	Probability
i.	LM test for Serial Correlation (Breusch-Godfrey Serial Correlation LM Test)	1.581443	0.2381
ii.	Heteroskedasticity Test (Breusch-Pagan-Godfrey)	0.734230	0.7281
iii.	Ramsey RESET Test	0.842986	0.3722
iv.	Normality Test (Jacque-Bera statistics)	0.752603	0.686395
v.	Stability Test (Cumulative Sum of Recursive Residuals)	The plot of CUSUM statistics stays within the critical bounds of 5% significance level	

Source: Author calculation

Note (1) ***, **, * represent the p-values are significant at 1%, 5% and 10% level, respectively.

Since the p-value of LM test is 23.81% which is greater than 5% significant level. It is accepted the null hypothesis that there is no serial correlation among the residual series in the estimated model. The results of Breusch-Pagan-Godfrey of heteroskedasticity test described that no heteroskedasticity since the probability of Chi-Square are greater than 5% significant level, which means that the variances of the error terms are constant. Thus, null hypothesis of no heteroskedasticity is accepted. The Ramsey RESET test shows no omitted variables in the model and there is a functional form are generating among the variables since p-value of 37.22 % is greater than 0.05 significant levels. Regarding the normality test, Jacque-Bera statistics with value of 0.752603 and its probability value of 68.6% are greater than 5% significant level. As the plot of CUSUM remains within the critical value-line, this reflects the presence of stability of the estimated parameters between economic spending and economic growth. As the estimated model passed all test, this means that the model has goodness of fit and well equipped with its efficiency and stability.

II. The Second Analysis on the Estimation of the Impact of Social Spending on Economic Growth (1980-2014)

The Second analysis is to examine the effect of social spending such as spending on education (LNEDU_t) and health (LNTHA_t) on economic growth (LNRPCGDP_t). Accordingly, the independent variables are spending on education-sector (LNEDU_t) and spending on health-sector (LNTHA_t) and the dependent variable is real per capita GDP (LNRPCGDP_t). Three dummies such as D₂₀₀₀, D₂₀₀₆ and D_{Stru} are considered in this analysis in order to observe their significant feature in the model. The dummy variable D₂₀₀₀ is denoted as spending on education that was significantly high in the year 2000. D₂₀₀₆ represents health expenditure that was very high in the year 2006. Finally, D_{Stru} stands for structural change after 1989, which reflects the economy with market oriented economic system. Moreover, the total consumption expenditure (LNC_t) is used as a control variable since this expenditure directly influence on the economic

growth. After determining the variables, then, required procedures have done for the ARDL estimation. The detail results for the second analysis is presented in table (3).

Table 3 The ARDL Long Run and ARDL-ECM Short Run Dynamic Adjustment between Social Spending and Economic Growth (1980-2014)

The Result of the Short Run Effect of Social Spending on Economic Growth				
Dependent Variables: LNRPCGDpt				
Independent Variables	Coefficient	Std error	T Statistics	Prob.
Δ LNPCGDpt	0.301322*	0.163270	1.845548	0.0848
Δ LNTEDt	-0.154897***	0.036070	-4.294352	0.0006
Δ LNTEDt-1	0.042602**	0.015825	2.692136	0.0167
Δ LNTHA _t	0.121578***	0.028917	4.204327	0.0008
Δ LNTHA _{t-1}	-0.026554*	0.013408	-1.980518	0.0663
Δ LNC _t	0.099137**	0.041894	2.366359	0.0318
Δ LNC _{t-1}	-0.296841***	0.043879	-6.764961	0.0000
Δ DStru	0.131336***	0.040132	3.272583	0.0051
Δ D2000	0.306980***	0.075578	4.061777	0.0010
Δ D2000 _{t-1}	0.114804	0.075215	1.526338	0.1477
Δ D2006	-0.158229**	0.051180	-3.091592	0.0074
C	0.253687***	0.038465	6.595348	0.0000
ECT_{t-1}	-0.165953***	0.025157	-6.596818	0.0000
(Cointeq=LNPCGDp- (-1.8373*LNTED+1.2587*LNTHA+ 1.1155*LNC+0.7372 *DStru + 0.8948*D2000 - 0.2759*D2006)				
The Result of the Long Run Effect of Social Spending on Economic Growth				
Independent Variables	Coefficient	Std error	T Statistics	Prob.
LNTED _t	-1.837370*	0.923076	-1.988547	0.0653
LNTHA _t	1.258667**	0.560276	2.246511	0.0402
LNTC _t	1.115508**	0.381559	2.923551	0.0105
DStru	0.737264*	0.362412	2.034325	0.0600
D2000	0.894860	0.532097	1.681759	0.1133
D2006	-0.275983	0.395183	-0.698368	0.4956

Source: Author calculation

Note (1) ***, **, * represent the p-values are significant at 1%, 5% and 10% level, respectively.

Note (2) Unit root testing, Bound test and ARDL model for the second analysis is illustrated in Appendix (ii), (iii) (B) & (v) (B), respectively.

The upper part of table elaborates the result of the short run effect of social spending on economic growth while lower part of the table shows the result of the long run effect of social spending on economic growth. Beginning with the results of error correction term (ECT_{t-1}), the coefficient of the lagged error-correction term is significant at the 1% level with the expected negative sign. This implies that the speed of adjustment moves back the economic growth to its initial equilibrium position. As the magnitude of the coefficient of error term is (-0.165953), the speed of adjustment corrects the disequilibrium which is occurred owing to the external factors at 16.6% in each period and it moves back the equilibrium toward the original position. This

implies that any change in the social spending due to a shock causes the occurring of the disequilibrium but this can be corrected by the adjustment of 17% in each period and then, which restores back the real GDP growth to its initial equilibrium. This evidence strongly shows the expected result.

Regarding the real per capita GDP, the result shows that the previous year value of real per capita GDP supports to the current year value of real per capita GDP since its p-value of estimated coefficient of real per capita GDP is significant at 10% (0.0848) and it has positive sign. This means that a one percent increases in the last year real per capita GDP causes the current year of real per capita GDP to increase at 3%.

With regard to education expenditure, in the short term, although the current year of education expenditure has a negative relationship to the real per capita GDP, the last year investment in education has a positive relationship to real per capita GDP. More specifically, a one percent increase in the current year of education expenditure causes economic growth to decline by 0.15% but a one percent increase in the previous year of education expenditure causes economic growth to increase by 0.04%. This implies that even the current year expenditure on education contributes to the negative influence on economic growth; the previous year of investment on education can generate positive effect on economic growth. However, the long run effect describes that education expenditure does not capture a positive contributing to economic growth, instead; it has negative relationship to the real per capita GDP. The result reported that, in the long-run; a one percent increase in spending on education leads to a decrease in 1.84 percent in real per capita GDP.

Regarding education, the government has done much for the promotion of education in both periods not only in the basic education level but also in higher education level. In order to make sure for the quality of education, the government efforts have been made to enhance education in all possible ways. Amongst, by establishing the new universities, institutes, degree colleges, and colleges, by encouraging university teachers to obtain doctorate degrees, and by increasing the number of faculty member had increased were remarkably performance. However, the negative relations between the education expenditure and economic growth has shown that government expenditure in this sector possibly concentrated more on unproductive activities rather than productive activities thus education expenditure could not contribute to the long run economic growth. To some extent, that the quality of education is related to budgetary expenditure, but education expenditure in Myanmar had been declining since 1996/97 over the year except 2000, which was less than 1% of GDP. Within the limited budgetary expenditure, it is necessary to focus on the effective and efficient use of expenditure in the development of education sector so that it can ensure a positive contribution to economic growth.

On the other hand, surprisingly it has found that there is a strong relationship between health expenditure and economic growth both in the short run and in the long-run. Even though the health sector received the smallest portion of the budgetary expenditure at less than 1% of GDP over the years, it contributed to the positive promoting effect on growth. The results describes that a one percent increase in the current year of health expenditure causes economic growth to increase by 0.12% but a one percent increase in the previous year of health expenditure leads economic growth to decrease by 0.03%. This implies that although the current year expenditure on health contributed to the positive influence on economic growth; the previous year of investment on health can generate a negative effect on economic growth. However, in

the long-run, the results reported that government spending on health contributed to economic growth since the p values for the long run coefficient is significant at 5%. The long run result reveals that a one percent increases in health expenditure leads to an increase in 1.26% on economic growth.

Among the dummy variables, the variables such as D_{2000} , which is significantly increased in education expenditure in the year 2000, generates only the short-run effect on economic growth since the p-values is significant at 1% level but it does not contribute to the long run economic growth. Likewise, D_{2006} , which is a sharply increase in the government expenditure on health in 2006, does not contribute to a promoting effect on economic growth instead it generates a negative relations to economic growth not only in short run but also in the long run.

Finally, the dummy variable (D_{Stru}) which describes the effect of market-oriented economy after 1989 has both the short-run and long run effect on the economic growth since p value is significant at 5% and 10% level respectively. Thus, a change in economic structure provides a positive impact on economic growth through the allocation of spending on health and education both short run and long-run.

To sum up, in the second analysis, with regard to social spending, the literatures such as Shenggen Fan et al 2003; Fan, Zhang, and Rao 2004; Adeniyi and Bashir 2011 found out that health and education expenditure enhance economic growth. Whereas Biletska and Rajaram 2007 found that insufficient allocation towards education and health has been critical constraint on growth rates. Fundamentally, health and education are the basic objectives of economic development and both generate indirect effect on economic development. Greater health capital may improve the return to investments in education in part and on one hand greater education capital may improve the return to investments in health. Thus, it is necessary to reconsider the allocation of the government budget to the social sectors based on the perspective of less priority to more priority in order to achieve the long impact and to improve the social development in Myanmar.

Table 4 Diagnostic Tests Results of Second Analysis

Sr No	Tests	F- Statistics	Probability
i	LM test for Serial Correlation (Breusch-Godfrey Serial Correlation LM Test)	0.052800	0.9488
ii	Heteroskedasticity Test (Breusch-Pagan-Godfrey)	0.908965	0.5786
iii	Normality Test (Jacque-Bera statistics)	0.053986	0.973366
iv	Ramsey RESET Test	2.939673	0.1085
iv	Stability Test (Cumulative Sum of Recursive Residuals)	The plot of CUSUM statistics stays within the critical bounds of 5% significance level	

Source: Author calculation

Note (1) ***, **, * represent the p-values are significant at 1%, 5% and 10% level, respectively

Since the p-value of LM test is 94.88%, which is greater than 5% significant level, it is accepted that there is no serial correlation among the residual series in the estimated model. The

results of Breusch-Pagan-Godfrey of heteroskedasticity test described that there is no heteroscedasticity. In this estimated model, the Ramsey RESET test shows that there is no omitted variable and there is a functional form are generating among the variables. Jacque-Bera statistics with value of 0.053986 and probability value of 97.3%, which is greater than 0.05 significant levels. Thus, this implies that the null hypothesis is accepted and the residual is normally distributed. In addition, the stability test shows that the plot of CUSUM and CUSUM square of residuals remain within the critical value-line within the critical bounds of 5% significance level which is represented by a pair of straight lines drawn at the 5% level of significance. All the remaining statistics reflects the presence of stability of the estimated parameters between social spending and economic growth. This is the indication of the stability and there is non- existence of uncertainty in this model.

Conclusion

Based on those findings the following possible policy implications are drawn by this study.

- **With respect to infrastructure**, the study reveals that government expenditure on infrastructure properly has achieved the outcomes of infrastructure development in the short run thereby boosting the larger impact on the long run economic growth. However, to precede further development, the government should strengthen the ongoing allocation spending to infrastructure in order to grip further achievement of infrastructure development. As the quality of infrastructure is one of the challenges included in infrastructure needs in Myanmar; In long run, however, both the funding for maintenance and new investment for infrastructure are further needed thus huge financing requirement may cause a challenge for the country. Hence, it is necessary to consider this fact because limited fiscal resources of a country restrict the ability to allocate adequate operations and maintenance budgets for infrastructure assets.
- **Regarding agricultural sector**, it is no doubt that agricultural sector is still a significant contributor to the economic output, export earnings and employment in Myanmar not only in the past, and in the present but also in the future. Currently, it contributes to the share of GDP nearly at 32%, and 20% of export earnings. It shares of employment at (60) % but it is much higher. Nevertheless, in term of the budgetary allocation, this sector received a less share less than 2% of GDP of spending over 35 years within the limited accessibility of the share of spending. However, the result of this study strongly confirms that spending on agricultural sector eventually generates a positive relation to economic growth not only in the short run but also in the long-run. This fact implies that the performance of the agricultural sector as a whole from 1980 to 2014 including both periods of socialist and market-oriented economy had been touched upon in connection with the overall performance of the economy.
- Thus, this study suggests that that the focused of government expenditure on the agricultural sector should not be overlooked, instead, the government should direct its spending efforts in productive means, through increase, improve and encourage the output of the agricultural sector and it should improve the spending allocation in the agricultural sector geared towards further economic growth. More than that, the upgrading and enhancing this sector can ensure better avenues for job creation, overall growth and higher GDP level.

- **Processing and Manufacturing Sector:** There are many constraints and issues still confronting in the manufacturing sector such as access to financing, access to markets, labor, supplies and technologies, regulations and taxation, infrastructure and utilities and conditions for international business. Indeed the nature of manufacturing and processing sector is included in capital intensive as well, which need a large amount of capital to upgrade manufacturing sector. However, the state investment was not sufficient for nurturing this sector because the spending allocation to this sector was relatively low at less than 2% of GDP. These constraints may cause a weak stimulation on the short run effect on economic growth as the result has found.
- However, the result of this study surprisingly found that public investment in this sector nevertheless contributed to the long run effect on economic growth. This result highlights a good channel to fulfill what the needs in this sector to pursue further economic development. Currently, the manufacturing sector has shown some positive signs of development, following various development strategies such as fostering the growth of private sector, coupled with second phase and the third phase reforms since 2011. Given the importance role of SMEs and Foreign Direct Investment in the manufacturing sector, policy measures which help to foster the growth of the SMEs and FDI will be crucial in the development of the manufacturing sector in the near future.
- **Health and education:** The study proves that the long run effect of education expenditure generates a negative relationship to the economic growth while the long run effect of health expenditure provides a positive impact on economic growth even both produce a short run positive significant impact on economic growth. Thus, to achieve social development, it should be needed to raise the overall level of spending on health and education and other social needs and their share in total government spending.
- **Moreover, with regard to education,** the study discovers that the negative relationship between education expenditure and economic growth. This possibly implies that the spending on this sector had more concentrated on unproductive activities rather than the productive activities. Thus, to obtain adequate resources for improving education outcomes and creating a better-educated workforce, education needs to be given a much higher priority in national policy discussions and in the budget allocation process.
- In analyzing the size, trend and compositions of public expenditure from 1980 to 2014, the study discovered that there was overall growth in the total government expenditures; however, within the limited availability of budget, the shares of public spending allocated to and received in each sector varied over the years. In addition, the allocation pattern is much more depended on the interests and the priorities of the government rather than based on the relative important contribution of the sector. Therefore, to sum up, in order to achieve both the short run and long run equilibrium and to boost economic growth:
 - Government should address the factors causing the negative impact on economic growth based on insufficient and ineffective use of the spending.
 - Government should concentrate more on the *unproductive activities* than *productive activities especially* to agricultural sector in spending allocation.

- Government should encourage and should be given much emphasizing on reallocation of expenditure on health and education to formulate for promoting human capital formation as well as ensuring that the resources are properly managed and used for the development of education and health services.
- Government should have a well-defined expenditure policy which pursued and effective management of resources in the development process since poor government's fiscal and monetary policies of the country may also impede economic growth.
- Government should ensure fiscal policy that contributes to economic growth in term of coordination between the development plan objectives and budget process.

Acknowledgments

First and foremost, I would like to express my greatest gratitude to all honorable teachers and retired Professors Sayargyi and Sayarmagyi those who have sharing me their valuable knowledge, experiences and kindness throughout my study - life. Then, I would like to reveal my special thanks to the editors of The Journal of Myanmar Academy of Arts and Science (MAAS) for giving me the opportunity to publish this paper. Furthermore, my heartfelt thank goes to my parents and family for their ever supports and love. Finally and last but not least, I would never forget the one who Almighty God for extending his eternal grace and bless to me.

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