

The Nexus between Government Expenditure and Economic Growth: Evidence from China

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Abstract:

The aim of this study is to investigate the relationship between government expenditure and Economic growth in the long run, using the Secondary data covering the period (1990-2016). The data was collected from China's national statistics office. For analysis, the Auto-regressive distributed lag approach to co-integration (ARDL) and bounds test technique has been utilized. Our results show that there exists a signification relationship between government expenditure and the economic growth both in the long and short run, the results also indicate, the government expenditure is one of the major drivers on the economic growth. Same test show haven't any signification relationship between the government expenditure and unemployment in the conclusion show the final result and some recommendation.

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I. Introduction

In both developed and underdeveloped country, economic stability is very important and China is not an exception. The motivation of the investment operation and the government expenditure, **Onodugo V. A. (2017)**, have smoothly participation on the economic growth process and have a central role in the reducing of the growing gap between the developed and developing area spicily in China, with a role in the financing role, in the infrastructural and the growing economic. **Chaowu L. (2003)**.

The process and the economic mechanism of how the government expenditure participate on the economic growth and the economic activity, **Iheanacho (2016)**. is according to the public Eco-social plane and the infrastructure project also the Equitable distribution of both resources. **Musa, Y. (2014)**, investments and have different researcher and economist explain the relationship between government expenditure and the economic growth. the theory of Musgrave & Rosto (1986) which explain the relationship between the expenditure and economic growth and the development. **Mario, B. (1994)**. the public finance and the government expenditure is playing important role in economic growth, **Ahmad, N. (2016)** .and the government and the state need to develop the infrastructures such as the water supply and the transport sector to push the development and the growth economics and Equitable distribution of resources. **Basirat, M (2014)**. So the hypothesis of this study areas haven't any significations relationship between the unemployment and the economic growth, and with signification with government expenditure and the government expenditure have signification and one of the supporting factor on the economic growth. And in this study we investigate the relationship between the government expenditure and growth economic in the case of China,when and to analysis the relationship between the variable in the long and short run we employed the The Auto Regressive Distributed Lag Approach Model (ARDL). This study we used the second data in the period (1990-2016), the data was collected from China national statistics office. This study was conducted in spectrum review to contribute to the explanation and analysis of the relationship between all government spending and economic growth which is one of the most important economic indicators, also, due to the lack of standard study between government expenditure and economic growth in the case of China, such as in the study by **Lahirushan G. (2015)**. The study investigated the relationship between the public expenditure and economic growth in Asia, areas included China. It analyzes the case of China in the Asian countries context when the analysis used panel data method were not cleared and focused on the long and short run, as also in the study by Qin (2019). The study was an empirical investigation study, when the determine the distribution impact on the government expenditure when the study forecasting on the modeling econometric and the analysis forecasting on the employment and the study loss the other economic factor, so according to the different notes and the research

lack the present study coming to contribute and analysis the effect and find the relationship between the government expenditure and the growth economic in the case of china.

The remainder of the study is as follows: it follows the section highlight on the literature survey, followed by the research method which is included data and model specification. The followed section deals with empirical results and lastly concluding comment.

II. Literature review

The study investigates the relationship between government expenditure, unemployment, and the economic growth, where the studies and researches have drawn different solutions and analyses according to the different economic schools, among the recent studies such as **Komain, J. (2007)**. An empirical study the author tested the relationship between the government expenditures and the economic growth variables in Thailand, with quarterly data during the period of (1993/2006) and to test the data used the Auto Regressive Distributed Lag Approach to Co-integration Model (ARDL) with Granger. The test and result of the investigation show to have a very positive relationship between economic growth and government spending

In study by **Muhammad, I. (2013)**, in the paper submitted to an international conference, was tested the infect the relationship between the inflation and the government expenditure and economic growth, in the period (1980/2010) the searchers used annually time series with Augmented dickey fuller test and Johansen co-integration to empirical and investigate the variables. The investigation result indicates have a positive relationship between the economic growth and inflation and the government expenditure in the long run, and in the short run the inflation hasn't any infect on the economic growth but have infect on the government expenditure **Teboho, M. (2013)** an investigation study the study investigated the relationship between the Unemployment and the GDP growth in the period between (1980-2011), the study data time sires data the searcher used the ADF to test the stationary of data also employed the causality test, the study result indicated no causality between the unemployment rate and the GDP Growth in the case of South Africa **Tai dang (2014)** The study used annual data (1970-2010), and used the ARDL model to test the relationship between the two variables (government spending, inflation) in the three countries (India, Vietnam, Indonesia) and the searcher testing the data in the context of the Keynesian and neoclassical view the result in India indicted, have positive relationship between the government and inflation in the short time ,In Indonesia have a negative relationship between government spending and inflation, In the case of Vietnam in short-run the inflation infect on government spending in the long run, test the government spending and inflation have statistics signification with a positive relationship.

Mohsen (2016), have tested the relationship between inflation and supply money and government spending in the period (1959-2010) and was using the ARDL model the result of the study show have no relationship significant between the growth rate of government spending, (GDP) and the inflation. **(Eugene I. 2016)**. the study was to examine the role of

government expenditure on the economic growth in the long run, in the period (2016) in Nigeria, the author using Johansen co-integration and error correlation technique with Cobb Douglas method the result show the government expenditure is one of driver the economic growth, and have collective contribution on the economic growth in the long run in the case of Nigeria.

III. Methodology

In the current study was used secondary data in time sires form was collected from China national statistics office under the period (1990-2016), the study was to investigate the relationship between the variables and according to literature review Gross domestics products as dependent variable and the China national expenditure, unemployed population as Independence variables, **Bildirici M. (2016)**. Also Depending on the nature of the study we using the econometric methods to-regressive Distributed Lag Approach to Co-integration (ARDL) with bound test technique and according to the (ARDL) methodology in the first step was test the stationary of variables and variables differentiation as I(0)I(1) or both next we go to test the co-integration relationship between the variables and test run the Error Correction Model and before plot the Cusum and Cusums the last step we checked the econometric and statistical issues with LM Test. **Onodugo V. A. (2017)**

The Auto Regressive Distributed Lag Approach Model (ARDL) Characteristics is the following:

$$\Delta(Gdp) = \varphi_0 + \varphi_1(Gdp) + \varphi_2(Ge) + \varphi_3(Un) + \eta_t \dots \dots \dots (1)$$

$$\Delta Ln(Gdp) = \varphi_0 + \varphi_1 \ln(Gdp) + \varphi_2 \ln(Ge) + \varphi_3 \ln(Un) + \eta_t \dots \dots \dots (2)$$

Auto Regressive Distributed Lag Approach Model (ARDL) on the long-run Equation as follows:

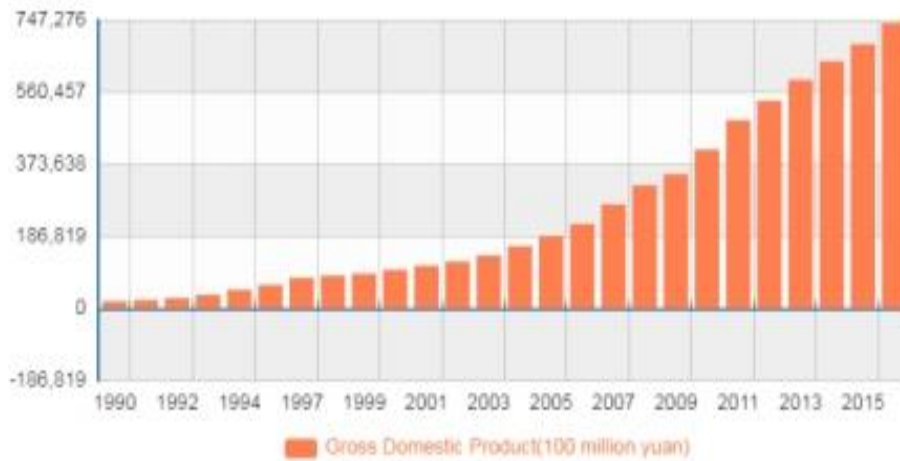
$$\Delta LnGdp = \vartheta_0 + \sum_{i=1}^n \varpi_1 \Delta \ln(Gdp)_{T-1} + \sum_{i=1}^n \varpi_2 \Delta \ln(Ge)_{T-1} + \sum_{i=1}^n \varpi_3 \Delta \ln(Un)_{T-1} + \varpi_1 \Delta \ln(Gdp)_{T-1} + \varpi_2 \ln(Ge)_{T-1} + \varpi_3 \ln(Un)_{T-1} + \eta_{T..} (3)$$

IV. Results and Discussion

The results and discussion of the study will be presented below. They are read in representative tables and charts.

Figure 1 - China Gross Domestic Product (1990-2018)

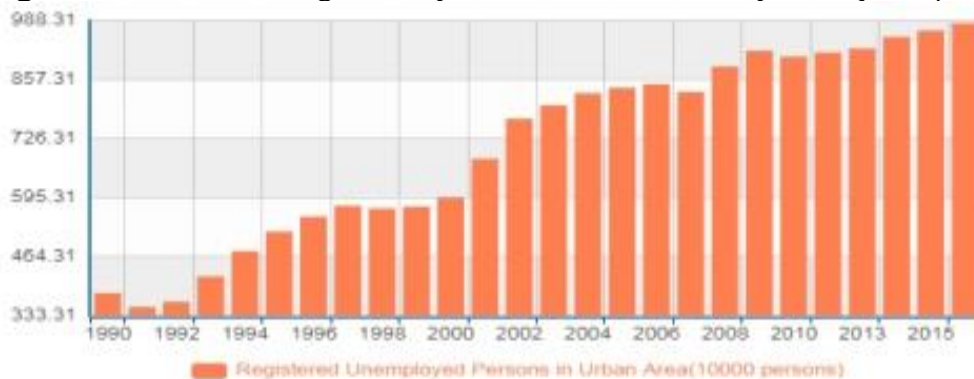




Source: Made by searcher based on the China national statistics office: <http://data.stats.gov.cn/>

The above table shows a steady, continuous and accelerating development of the economic growth rate in China, where the growth rate between 1990-2000 was slow and low, as is known, due to the lack of base structures, rules and constructions capable of absorbing the size of the Chinese economy, but during the new century after 2000 The growth of the industrial economy accelerated with the highest level recorded in 2018.

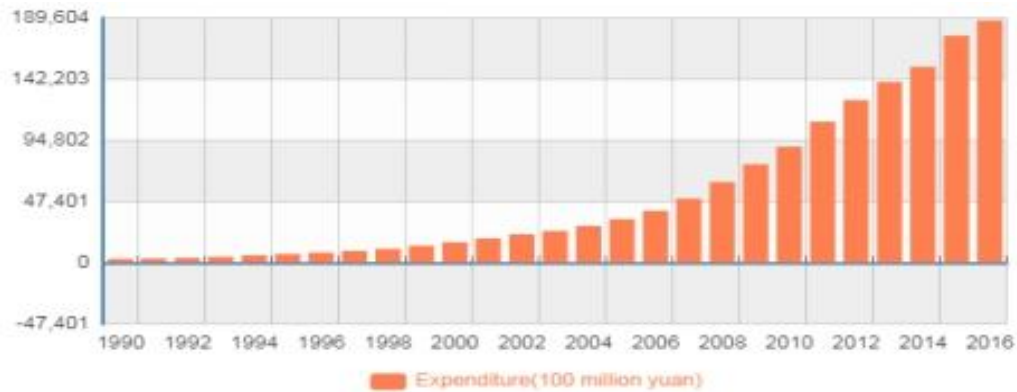
Figure 2 - Number of registered persons in China in the period (1990/2016)



Source: Made by Author based on the China national statistics office: <http://data.stats.gov.cn/>

We see unemployment rates at the beginning of the nineties and your decline as a result of the country's policy of operating. China was working on the economic reform and the building of the basic buildings in order to keep pace with the economic development and we note that with the beginning of the new century and the year 2000, Close to 4.25 and the rate of the average rate of the Chinese labor market of saturation and technological coverage of the human-mosquito in many jobs.

Figure 3 - Volume of government expenditure in the People's Republic of China in the period



(1990-2016)

Source: Made by Author based on the China national statistics office <http://data.stats.gov.cn/>

Through graphical representation, we note the instability in the rate of development of government spending in China, where we note during the period between 1990-1992 we note the increase in government spending is increasing and at a weak speed; we also notice rising and increasing government spending with increasing and fast thanks for the years 1992-1994 followed by a sharp decline between 1994 and the new century, when it returned to rise again and quickly returned to the end of 2008, where the rate of governmental spending was highest since the 90th year and was gradually declining until 2017, with the lowest level in 25 years and. The high level of expenditure in 2000 and 2008.

Estimation Variables

Gdp: The grouse domestic production

Ge: National expenditure

Un: China Registered Unemployment person in the urban area

η_t : The error term

Table 1 - Auto-regressive Distributed Lag Approach result of unit Root test (ADF) result

Variables	Trend and Intercept tests	T Values	PValues	Comments
Lin GDP	Level	- 4.785	0.0046	Stationery
	first difference	-4.868	0.0009	
Lin Ge	Level	-4.230	0.0169	Stationery
	first difference	-0.688	0.4086	
Lin Un	Level	-3.447	0.0187	Stationery
	first difference	-3.527	0.0166	

Source: Authors Calculation by using eviews 10

Table 2 - The Auto-regressive Distributed Lag Approach Bound Test Result



F- statistics = 27.8355, k = 2		
Significance	I ₀ Bound	I ₁ Bound
10%	3.17	4.14
5%	3.79	4.85
2.5%	4.41	5.52
1%	5.15	6.36

Source: Author's Calculation by using eviews 10

Table 3 - Auto Regressive Distributed Lag Approach Model (ARDL) short run test result

Variables	Coefficient	T statistics	P values
DlinG _{dp}	0.573	4.959	0.004
DlinG _e	0.343	2.517	0.028
DLinU _u	0.240	1.553	0.148
Coint-Eq(-1)	-0.834	-8.934	0.000

Source: Author's Calculation by using eviews 10

Table 4 - Auto Regressive Distributed Lag Approach Model (ARDL) short run test result long-run form

Variables	Coefficient	T values	P Values
Lin G _e	0.792	53.781	0.000
Lin U _n	- 0.091	-1.298	0.220
C	4.489	13.177	0.000

Source: Author's Calculation by using eviews 10

Based on the table above the result indicated the Co - Eq negative is (-0.83) the P-value less than five percent, which means 0.83% of the error in the short term can buck to level in the short term, period of one year and less than one also according to the table result government expenditure indicate result less than 0.05 percent. Also the variables government expenditure indicates a negative result less than five per cent, that means to have direct signification between the gross domestic production and the government expenditure in the short run.

According to the table results above, it indicates the (Lin Ge) P-value is significant at (0 value) and less than 5%, at the same time have (T value) significant at 53.73 value, which interprets the result acceptably and has relationship between the (Lin Ge) and the dependent variable in the short run. In the case of (Lin Un) the T value indicate (-1.298) and P value equal (0.22) which is more than 5% so the result is unacceptable. This interprets that it does not have a relationship with the dependent variable in the short run. The constant variable (C) zero is less than 5% and this result proves and interpret that there is a long-term relationship between the dependent and independent variables in the long term. However, globally the result explains the long run relationship between economic growth and government expenditure in the case of China in the period of the study (1990-2016). This is what drew the interest of China's government to put more public investment and expenditure to economic growth in the short and long run. The study also indicated no relationship

between economic growth and unemployment both in long and short run. The study result supports the study by **Obiamaka E. (2016)**. The study result found a positive relationship between government expenditure and economic growth and no significant relationship between government expenditure and unemployment in the case of Nigeria, and in the same context, the empirical study by **Omar A. K. (2018)** The study investigated the relationship between government expenditure and economic growth in Jordan. It indicated that government expenditure has positive impact on the economic growth.

Table 5 - The Serial Correlation LM Test

F. statistic	1.393	Prob. F (9,9)	0.29
R.squared	5.437	Prob.Chi -square	0.06

Source: Author's Calculation by using eviews 10

The result of the table above indicated the F-statistics is equal to 0.297 and according to the methodology this mean in the model haven't any kind of statistic and econometric issues.

Table 6 - Heteroskedasticity test result

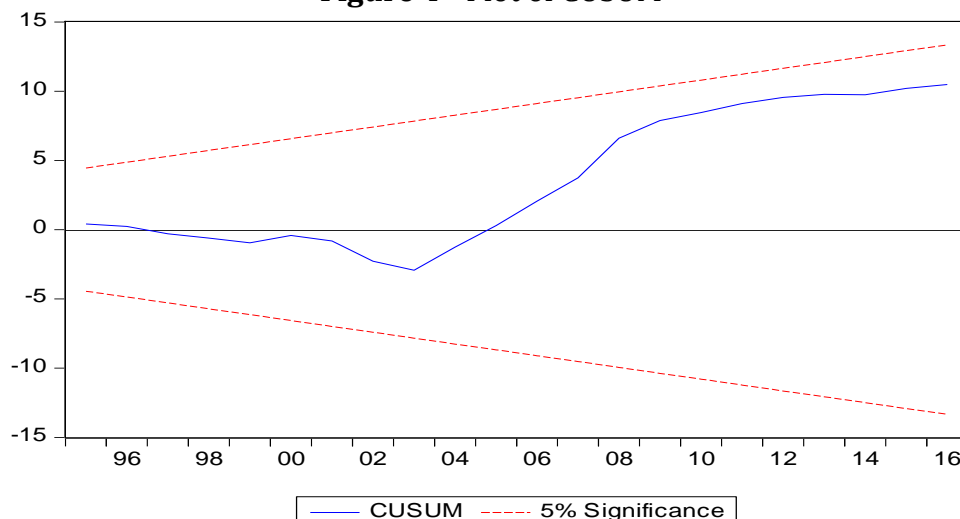
F.statistics	0.417	Prob.F (11.11)	0.91
R.squared	6.776	Pro.chi square	0.81
Scaled ss	1.216	Pro.chi square	0.99

Source: Author's Calculation by using eviews 10

Based to the result of the table above and according to the statistical test result and the table result is above to five per cent and also the F-statistic is above than five per cent so this result indicates and shows the model data is normal with no correlation relationship.

A plot of (CUSUM, CUSUMSQ)

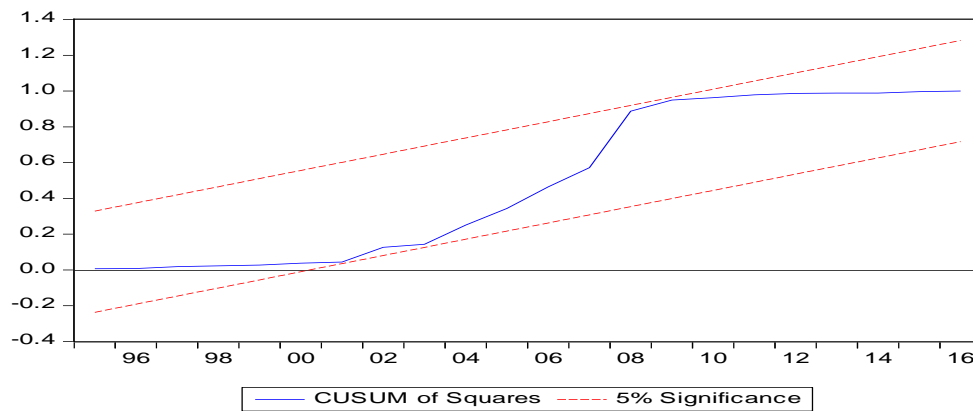
Figure 4 - Plot of CUSUM



Source: Drawing by author's based en Eviews 10

Figure 5 - Plot of CUSUMSQ





Source: Drawing by author's based on Eviews 10

V. Conclusion

According to the empirical study above and basic to the discussion was taken above the study was indicate and investigate the relationship between the variables in both long and short run for this investigation was used the ARDL model, bound test technique with the second study according to the study relative was used the national expenditure as dependent variables and the growth of gross production and unemployed as independent variables, the second data test showed the national expenditure and growth gross production haven't signification the short long run but have signification-in long-run relationship and this based on the Chinese government strategy the economy will grow in the long run ,and the result also indicates the national expenditure have both relationships with unemployed and this what impact the Chinese government tack the employment centre of strategy in long and short run and this what the result indicate. The coefficient of economy growth statistically is significant but the unemployment statistically is not significant, the test result was shown have a co-integration relationship between government expenditure and economic growth is a positive and strong relationship, also the empirical test was in direct have a positive relationship between the economic growth and the unemployment. And for speed up and acceleration of economic growth process and revitalization of government expenditure elements with the other economics factor and components follow the recommendation the government needs to promote the public project and finance the private project because-will be impact the development and economic growth, directing and delivering training to emerging projects to keep pace with government spending policy.

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