THE RELATIONSHIP BETWEEN MONEY STOCK AND ECONOMIC GROWTH OF SRI LANKA: AN AEG TESTING APPROACH

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ABSRTRACT

In the view of economics the money stock means that the total amount of monetary assets available in an economy at a specific time. As well, economic growth means percentage increase in Gross Domestic Product or Gross National Product on year to year basis. The data used in this study were collected from the annual report of the Central Bank from 1959 to 2013. This study found that there is positive stable relationship between the money stock and the economic growth of Sri Lanka during the study period. The graphical investigation and the Augmented Engel Granger testing analysis also proved that there is a significant relationship between the variables in Sri Lanka. This study recommends that, the monitory policy makers of Sri Lanka should consider this relationship in future, when they formulate the macroeconomic concepts of the monetary policy for Sri Lanka.

Keywords: Economic Growth, Gross Domestic Product, Money stock, Modern economy, and Stationarity

INTRODUCTION

In the modern economy, money stock is a very importance tool to accelerate the economic growth of nations which play an essential role in the determination of price level and interest [1]. In the view of economics, the money stock means that the total amount of monetary assets available in an economy at a specific time [6]. As well, economic growth means percentage increase in Gross Domestic Product (GDP) or Gross National Product (GNP) on year to year basis [3].

In monetary economics, the Monetarist believes that variation in the money stock has major influence on national output, and that objective of monetary policy is the best by targeting the growth rate of the money supply rather than by engaging in discretionary monetary policy, consistent with the economic theory. The economic growth and money stock maintain very narrow causal relationship between them [7].

Even if there are several studies internationally (Owoye and Onafowora 2007, Gamal 2007, Zapodeanu and Cociuba 2010, Liang 2012, Ihasn and Anjum 2013) about the relationship between the money stock and the economic growth, but no study is done using the AEG testing approach even in Sri Lanka as well. Therefore, it is an essential study in Sri Lankan context. The objective of this study is to test the relationship between the money stock and economic growth of Sri Lanka. To achieve this objective, this study is designed into the following items: introduction, methodology, results and discussion, finally conclusion and policy recommendations.

METHODOLOGY
This included Gross Domestic Product (GDP) as dependent variable and Money stock (Ms) as independent variable. The data used in this study were collected from the annual report of the Central Bank from 1959 to 2013. The relationship between two variables was estimated using the following econometric model.

$$GDP_t = f(MS_t) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$
$$GDP_t = \beta_0 + \beta_1 MS_t + U_t \ldots\ldots\ldots\ldots (2)$$

Where: the dependent variable was GDP_t, the independent variable was money stock which was noted by MS_t. Error term was indicated by U_t and β_0, β_1 were coefficients of the model. The Augmented Engel – Granger (AEG) testing method used in this study was to examine the relationship between both variables. Kernel fit was used to test the relationship graphically. Then, the Augmented Dickey Fuller (ADF) and Philips Perron tests were used to test the stationarity of the variables individually.

RESULTS AND DISCUSSION
The Kernel fit to test the relationship between the money stock and the economic growth of Sri Lanka is used in this study.
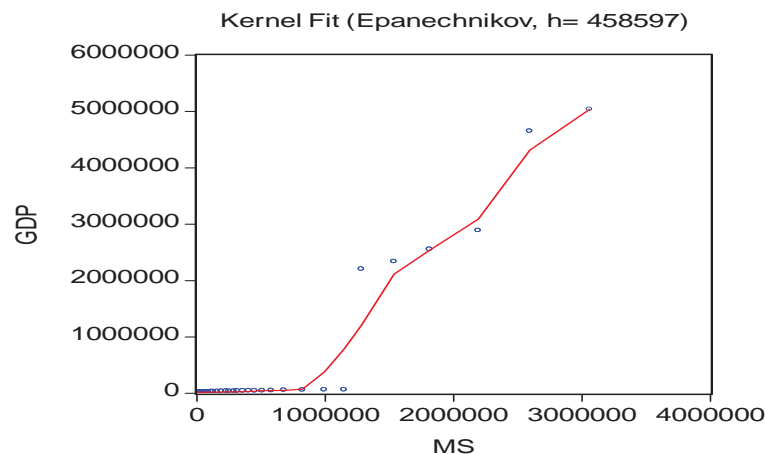

Figure 1: Kernel Fit for GDP and Money supply

The Kernel Fit is a non - parametric graphical method in which the relationship between the two variables is explained according to the Figure -1.There is a positive relationship between the money stock and economic growth during the period of 1959 – 2013.

In parametric analysis, the Augmented Dickey Fuller (ADF) and Phillips Perron testing methods are employed to test the stationarity of the series (Money stock and economic growth of Sri Lanka). The ADF and Philips Perron tests results are given bellow in the table -1 and 2:

Table 1: The ADF testing results of the variables

Variable	Level					
	C	5%	C and T	5%	None	5%
Money supply	48.70	-2.91	34.88	-3.49	54.97	-1.94
GDP	3.52	-2.92	1.30	-3.50	4.00	-1.94

Source: Author's calculation

Table 2: The Philips Perron testing results of the variables

Variable	Level					
Money supply	C	5%	C and T	5%	None	5%
	45.67	-2.91	45.66	-3.49	51.20	-1.94
GDP	4.18	-2.91	-2.93	-3.49	-4.74	-1.94

Source: Author's calculation

The ADF and Phillips Perron testing approach indicate that, both money stock and gross domestic product are stationary at 5% significance in the level form because the absolute values of the tests statistics of the ADF and Philips Perron testing methods are greater than the critical values of the test statistics.

The Augmented Engel – Granger (AEG) testing method is employed in this study to test the relationship among the money stock and economic growth. The estimated regression model is $GDP_t = -174626.1 + 1.475994 MS_t$. The statistic of partial of the independent variable (the money stock) is 17.91 with p – value of 0.000. The R - squared of this model is 0.85 and Durbin – Watson statistics of this model is 0.615. Therefore, both variables are maintained the relationship between them at level I(0) form which was confirmed by the results of AEG testing method.

Then, the ADF testing method is used to check the stationarity of the residual series $(\ddot{U}_t)$ of the estimated model. Based on results of the stationarity of the residuals series, the absolute value of the ADF testing statistic is 3.28 and absolute value of the critical value is 2.92 at 5% significant level. Therefore, the residual series is stationary at level form. So, the estimated model is not suffering by the spurious problem.

CONCLUSION AND POLICY RECOMMENDATIONS

This study found that there is positive stable relationship between the money stock and the economic growth of Sri Lanka during the study period. The graphical investigation and the Augmented Engel – Granger (AEG) testing analysis also proved that there is a significant relationship between the variables in Sri Lanka. Therefore, this study recommends that, the monitory policy makers of Sri Lanka should consider this relationship in future, when they formulate the macroeconomic concepts of the monetary policy for Sri Lanka.

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