THE IMPACT OF GOVERNMENT EXPENDITURE ON INFLATION: EVIDENCE FROM SRI LANKA AND INDIA

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ABSTRACT

This study analyses the impact of government expenditure on inflation in Sri Lanka and India from 1977 to 2019, using ARDL Co-integration, Bounds test, Error Correction version of the ARDL model and the Granger Causality test, while employing inflation, government expenditure and interest rates as study variables. Results for both Sri Lanka and India reveal a statistically significant and a positive relationship between government expenditure and inflation in the long run: A 1% increase in government expenditure tends to increase inflation by 0.0793% and 4.6469% for Sri Lanka and India respectively. The coefficient of the Error Correction Term for both countries carry a negative sign and are statistically significant, indicating an adjustment towards equilibrium at a speed of 63.8% and 93.94% respectively, one period after exogenous shocks. Granger causality test indicates a unidirectional causality stemming from government expenditure towards inflation only in the case of Sri Lanka. This highlights Sri Lanka's need to manage its public expenditure and its impact on money supply in order to achieve price stability. It is advisable for fiscal as well as monetary

policy makers to work closely so as to control inflationary pressure on the economy resulting from rising government expenditure.

Keywords – Government Expenditure, Inflation, ARDL Model, Sri Lanka, India

1. INTRODUCTION

Since the beginning of the Global Financial Crisis in 2008, with nominal interest rates being close to zero, fiscal stimulus in the form of government spending has become a more popular tool used by governments to stabilize and stimulate economies (Buchhols, 2021). The purchase of goods and services by the country's central government, such as public consumption, public investment, and so on, is referred to as government expenditure. The general government total expenditure as a percentage of GDP for Sri Lanka and India were 21.93% and 31.05% respectively in 2020 (Countryeconomy.com, 2022). It is generally argued that fiscal imbalances due to higher government expenditure might have played an important role in explaining price fluctuation in every country.

Increase in the general price level of goods and services is known as inflation. In comparison to the previous year, India's inflation rate was roughly 6.18% whereas it was 6.15% for Sri Lanka in 2020 (World Bank Development Indicators, 2022). In 2020 the worldwide inflation rate amounted to approximately 3.2 percent (Neill, 2021). Many factors such as monetary, fiscal and public finance factors cause inflation. Within the monetary approach, Friedman (1963) argues that inflation is always and everywhere a monetary phenomenon. From the fiscal perspective, Fiscal Theory of Price Levels (FTPL) indicates that the fiscal authority that determines prices rather than the monetary authority, as opposed a theorized by the monetarists (Nguyen,2014, Tiwari et al., 2012). In addition, Keynesian economic Explanation is the key theory that establishes a connection between government expenditure and inflation. Within this school of thought, government expenditure (G) is taken as a part of aggregate demand which, in the face of short-run inelastic aggregate supply, can induce an inflationary pressure on the economy.

On the other hand, there are enough evidence among the previous studies related to the relationship between government expenditure and inflation. For example, Nguyen (2014) found that from the fiscal policy perspective government spending can be one of the contributing factors to rising inflation and it affects inflation indirectly through money creation.

The stabilization of the general price level has become a major macroeconomic objective of the monetary authorities. Inflation affects all aspects of the economy, from consumer spending, business investment and employment rates to government programs, tax policies, and interest rates. Demand often outstrips supply of goods during the boom stage of an economic cycle, allowing producers to increase prices. As a result, the rate of inflation increases. Therefore, an analysis of economic history reveals that inflation has been a major issue for policy makers in both Sri Lanka and India. Because, countries have been thrown into long periods of instability due to inflation.

In sum, Expansionary fiscal policy which is increasing government expenditure can temporarily enhance overall demand and economic growth. This increase in demand exceeds an economy's production capacity; the resulting strain on resources is reflected in "demand-pull" inflation. Policymakers must keep the balance between boosting demand and growth when necessary without inflation. Therefore, it is timely needed to explain inflation phenomenon through the central government expenditure in India and Sri Lanka as a comparative study. So, this paper aims to examine the impact of government expenditure on inflation in Sri Lanka and India over the period from 1977 to 2019. More specifically, it investigates the government spending- inflation relationship in the long-run and in the short-run.

2. LITERATURE REVIEW

Theoretical Framework

Keynesian economic explanation

This is a key theory that establishes a connection between government expenditure and inflation. Within this school of thought, government expenditure (G) is taken as a part of aggregate demand which, in the face of short-run inelastic aggregate supply, can induce an inflationary pressure on the economy. Furthermore, government expenditure can stimulate private consumption in an economy increasing aggregate demand even more.

The theory also focuses on the sources utilized by the government to finance the said expenditure since burrowing from local sources can both dampen the funds available for the private sector investments and private consumption at the same time raising the market interest rates. This is known as the crowding-out-effect and it further lowers the output and a decreasing output in the face of increased aggregate demand is once again resulting in a rise in the general price levels of the economy.

Monetarist point of view

From a monetarist point of view inflation is a "monetary phenomenon" (Solomon and de Wet, 2004, in Tiwari et al., 2012). Fisher's equation of Quantity Theory of Money explains how a rise in money supply can cause a rise in the price levels of an economy. This can be connected to government expenditure via government budget deficits, funding of which can lead to inflationary pressure. If the government chooses to print money in order to finance its deficit, according to the Fisher's equation:

$MV = PY$

{Where, M –money supply, V-velocity of money, P- price levels, Y- output}

Given that V and Y are constant, an increase in M is countered by a proportional increase in P, in other words, inflation. Following this theory, an economy's budget deficit and the burden that G can add to an already existing deficit can ultimately worsen a country's price stability.

Fiscal Theory of Price Levels (FTPL)

A theory "developed by Woodford (1994, 1998), Leeper (1991), Sims (1994), and Cochrane (1998, 2001) and extended to an open economy by Daniel (2001)" (Tiwari et al., 2012) rejects the idea that money creation is the only conveyer of inflation from a fiscal policy change. "In other words, FTPL theory says that a fiscal dominant (i.e., non-Ricardian situation) regime may arise when fiscal policy is not sustainable and government bonds are considered net wealth" (ibid.). This makes it impossible for the monetary authorities to adhere to the plans of holding prices stable (Leeper, 1991; Sims, 1994; Cochrane, 2001, in Afonso et al., 2018).

According to this theory, the monetary authority does not have to print money to keep up with rises in G. If the Fiscal Policy causes G to rise independently of monetary authority, then the public savings (Taxes- G) will fall. This fall in savings will then cause prices in the economy to rise. Furthermore, if the monetary authority choses primary surplus without a constraining effect from public debt, the prices will have to adjust the size of the budget constraint. It becomes possible if the prices are endogenous. The proponents of the theory suggest that the existence of nominal government bonds ensures the practicality of the theory. This indicates that it is the fiscal authority that determines prices rather than the monetary authority, as opposed a theorized by the monetarists (Nguyen,2014, Tiwari et al, 2012).

Empirical Review

In the literature, few studies directly focus on the effect of government expenditure on inflation in both Sri Lanka and India. On the other hand, the number of studies focuses on the effect of budget deficit/ fiscal deficit on

inflation instead government expenditure and, the researchers discuss how government expenditure impacts inflation through the relationship between budget deficit and inflation

Kulatunge (2017) examines the dynamics of inflation in Sri Lanka using the co-integration approach on quarterly time series data. He employed inflation, economic growth, government expenditure, exchange rate, money supply, oil prices and interest rates as the variables for the study. According to his study results, he found that in the long run, all selected variables including government expenditure are determinants of inflation in Sri Lanka. According to the estimated impulse response function, all selected variables excluding government expenditure have an effect on inflation in the short run. Devapriya and Masaru (2012) have done their research work to investigate the relationship and causal structure between government budget deficits, deficit financing sources, and inflation in Sri Lanka for the time period from1950 to 2010. Their estimated results reveal that all coefficients are positively correlated with inflation, and that the budget deficit and inflation have a bi-directional causal relationship. Therefore, Researchers suggest to the policy makers to minimize the money supply burden in the monetary sector, the government can choose from a variety of borrowing options to finance their deficit in Sri Lanka.

Ekanayake (2012) focused on two propositions of fiscal-based theories of inflation in light of the Sri Lankan experience from 1959 to 2008. The MIU model (money-in-the-utility function), the ARDL model, the ECM version of the ARDL model, and the Bound Test were used as the methodology. Ekanayake also has used additional variables such as import price index, public sector wage expenditure, trade openness while selecting similar variables such as CPI and budget deficit. Ekanayake has showed that in the long run, a one percentage point increase in the ratio of the fiscal deficit to narrow money is associated with about an 11 percentage point increase in inflation. Public sector wage cycles underlie the weak relationship between the fiscal deficit and inflation. According to study results, he concludes that inflation is not only a monetary phenomenon in Sri Lanka. Further, public sector wages are a key factor that links the fiscal deficit and inflation and it explains the deficit-inflation relationship.

Nguyen (2015) investigates the effects of the fiscal deficit and broad money M2 supply on inflation in nine Asian countries; Sri Lanka, Bangladesh, Cambodia, Indonesia, Malaysia, Pakistan, the Philippines, Thailand, and Vietnam in the period from 1985 to 2012. The Panel Differenced GMM (General Method of Moment) Arellano-Bond estimator was used as the analytical techniques while choosing fiscal policy variables such as fiscal deficit and government expenditure, monetary policy variables such as broad

money M2 supply and interest rate, and some control variables such as real GDP per capita, exchange rate, and trade openness to investigate effects on inflation. Nguyen has found through his study results that fiscal deficit and government expenditure are the statistically significant determinants of inflation in both methods of estimation and interest rates also cause inflation in the case of Sri Lanka. Therefore, Nguyen concludes that the fiscal deficit, government expenditure, and interest rates are positively correlated with inflation. Therefore, he has commented that the governments of Asian countries should be careful about those variables of fiscal and monetary policies when applying these policies to foster the economy, because they can contribute to high inflation.

Habibullah et. al. (2011) also have done a research work to determine the long-run relationship between budget deficit and inflation in thirteen Asian developing countries: Indonesia, Malaysia, Philippines, Myanmar, Singapore, Thailand, India, South Korea, Pakistan, Sri Lanka, Taiwan, Nepal, and Bangladesh for the time period from 1950-1999. According to study results, researchers found that inflation and budget deficits are co-integrated and that budget deficits cause inflation in the long run. The error-correction term also indicates the speed with which deviations from long-run equilibrium will be corrected. This appears to take place quite slowly, ranging from 32 percent for India to 13 percent for Sri Lanka. The case of Sri Lanka did they find budget deficits to cause inflation in the short run. Therefore, they conclude that budget deficits are inflationary in the selected Asian developing countries.

Few studies in the literature examine government expenditure and inflation in India. While investigating causality, some of these studies attempt to establish short-run and long-run relationships between government expenditure and inflation. For example, Tiwari et. al., (2012) examine the direction of causality among the fiscal deficit, government expenditure, money supply, and inflation in India based on the period from 1970-71 to 2008-09. To achieve their study objectives, they used Dolado and Lütkepohl (DL) (1996) and the Granger-causality approach. They used fiscal deficit, inflation, money supply, and government expenditure as the variables for this study. Estimated results show that inflation does not Granger-cause any of the variables. They have concluded that a reduction in the fiscal deficit may help contain "crowding out" and thus boost investment, which, concomitant with an increase in productivity and production, may help control inflation. Moreover, Nguyen (2014) investigates the long-run and short-run impacts of government spending on inflation in three Asian emerging economies; India, Indonesia, and Vietnam. This study was based on the Johansen co-integration test and the Vector Error Correction Model, and it was performed under two cases, which are the bivariate vector error correction model and the trivariate system. In the first case, variables growth rate of the annual consumer price index

(CPI) and the growth rate of government spending as a percentage of GDP were used, and under the trivariate system, researchers added a new variable, which is the nominal exchange rate. The data from 1970 to 2010 were used for this study. According to estimated results, the bivariate model shows that in the long run, government spending has a positive impact on inflation in all three countries, and government spending causes inflation in the case of India in the short run. Results for India and Indonesia indicate that if inflation deviates from its equilibrium level, government spending will influence bringing inflation back to its long-run level. Moreover, the bivariate model shows that government spending and inflation are positively correlated both in the long-run and in the short-run for India and Indonesia. In the case of Vietnam, government spending appears to have a positive impact on inflation only in the long-run. In the trivariate model, the researcher found that government spending as a share of GDP is statistically significant and positive in the cases of India and Indonesia. In the case of Vietnam, although the sign and size stay the same, government spending is not statistically significant. Therefore, he has commented on the study results that unexpected increases in government spending will likely put upward pressure on inflation, which in turn may hurt growth.

Dikeogu (2018) examines the effect of public spending on inflation in Nigeria from 1980 to 2017. Auto-Regressive Distributed Lag (ARDL) model was performed to analyze data on public capital, recurrent spending as public spending variables, and money supply and exchange rate. According to study results, Cynthia has shown that public capital spending impacts negatively on inflation, and government recurrent spending has a negative and insignificant impact on inflation. Supporting to Cynthia's study in 2018, George-Anokwuru and Ekpenyong (2020) also found that in the long run, government expenditure has a negative and statistically significant impact on inflation in Nigeria. In the short run, government expenditure has a positive and insignificant impact on inflation rate between 1999 and 2019. There was another study done by Oloyungbo (2013) to examine the asymmetry causal relationship between government spending and inflation in Nigeria from 1970 to 2010. He has employed a Vector Auto Regressive model to analyze the data. He found a unidirectional causality that stemmed from negative government expenditure changes to positive inflation changes in VAR. Therefore, Oloyungbo concludes that inflationary pressure in Nigeria is state-dependent, high inflation caused by low or contractionary government spending. These findings differ from previous reviewed literature for Sri Lanka and India. For both countries, previous study results revealed that government spending impacts positively on inflation. Anyhow, Cynthia suggests that the government needs to ensure appropriate channeling of its expenditure on infrastructural development in order to stimulate investment and production, thereby stabilizing the price. Also, there is a need for the

government to efficiently engage monetary policy instruments that are adequate in ensuring a given level of money supply that stabilizes prices.

Numerous research works support economic theories in the cases of selected Asian emerging economies, while some studies report debating results and comments. In the case of Sri Lanka and India, selected articles report the same result: that government spending causes inflation. In the case of Nigeria, Cynthia (2018), Anokwuru and Ekpenyong (2020) and Oloyungbo (2013) have shown through their study results that government spending has a negative impact on inflation.

Accordingly, studies related to the impact of government spending on inflation, though few in number, are available for both Sri Lanka and India. And also, there are similar studies found for other Asian economies as well as countries all around the world. However, a larger proportion of these studies analyze the nexus between government expenditure and inflation, indirectly, by looking at government budget deficit and the resulting inflationary situations. Thus, the aim of this paper is to fill that existing gap in literature and provide a side by side analysis of two economies that heavily depend on government expenditure; Sri Lanka and India. Furthermore, given the economic crisis experienced by Sri Lanka in the post COVID period and the impacts of the pandemic on the South Asian Economies including India, there is a timely need to examine the causal relationship between inflation and government spending within the two countries in order to figure out if a cut in government expenditure may lead to the expected impacts on the economy's inflationary pressure.

3. METHODOLOGY

India and Sri Lanka share numerous commonalities due to their proximity and shared history. Both countries are dealing with rising government spending and a budget deficit. Both are pursuing regulatory reforms in order to cut government spending. However, increased government spending leads to higher inflation. In this study, we employ annual time series data from Sri Lanka and India over the period of 1977-2019 to examine the causal relationship between inflation and government expenditure. The data of consumer price index (CPI), government expenditure (GE) and interest rate (IR) were extracted from the World Development Indicator of the World database. First two variables are transformed into natural logarithms. Following the empirical literature (e.g., Nguyen (2015)) in related to inflation and government expenditure, we develop the long-run relationship between the variable as below:

$$LCPI_t = \beta_0 + \beta_1 LGE_t + \beta_2 IR_t + U_t \qquad (1)$$

Where, variables name are as explained above, U_t is the white noise error term and t illustrate the time period. The estimation of equation (1) begins with the identification of the order of integration of each variable using Augmented Dickey Fuller (ADF) unit root test for this analysis. In the second step of the estimation procedure, we have to identify the optimal lag length that can be used in the model. There have been several methods proposed to deal with the problem of correctly determining the proper lag length for time series models. There are several criterions such as sequentially modified Likelihood Ratio (LR) statistics, Akaike Information Criterion (AIC), Swartz Information Criterion (SC), Hannan-Quin Information Criterion (HQIC) and Final Prediction Error (FPE) to select the optimal lag length that can be included in a time series model. However, we will adopt either one or more of these criterions in our analysis according to results and the requirements. In the third step, we use ARDL cointegration technique developed by Pesaran et al. (2001) to empirically estimate the dynamic relationship between the variables described in equation (1). An ARDL representation of equation (1) is formulated as follows:

$$\Delta LCPI_t = \delta_0 + \delta_1 LCPI_{t-1} + \delta_2 LGE_{t-1} + \delta_3 IR_{t-1} + \sum_{i=1}^{q1} \beta_{1i} \Delta LCPI_{t-i} + \sum_{i=0}^{q2} \beta_{2i} \Delta LGE_{t-i} + \sum_{i=0}^{q3} \beta_{3i} \Delta IR_{t-i} + e_t \qquad (2)$$

Where, Δ denotes the first difference operator, δ_0 is the drift component, e_t is the white noise error term, $\delta_1 \rightarrow \delta_3$: denotes the long-run coefficients, the remaining expressions with the summation sign ($\beta_{1i} \rightarrow \beta_{3i}$) represent the short-run dynamics of the model. Net, it has been employed the Bound testing procedure for equation (2) to identify the existence of the cointegrating relationship between the variables. Once we confirmed the cointegrating relationship among the variables using above test, in the next step of the estimation procedure we obtain the short run dynamics of parameters and long run adjustment of the model by estimating the error correction version of ARDL model pertaining to the variables in equation (2) is as follows:

$$\Delta LCPI_t = \delta_0 + \sum_{i=1}^{q1} \beta_{1i} \Delta LCPI_{t-i} + \sum_{i=0}^{q2} \beta_{2i} \Delta LGE_{t-i} + \sum_{i=0}^{q3} \beta_{3i} \Delta IR_{t-i} + \lambda ECT_{t-1} + V_t \qquad (3)$$

where, λ: speed of adjustment coefficient which should have statistically significant and negative sign to support the long run adjustment towards steady state line, V_t: pure random error term.

Finally, Granger causality test was employed to check the causality relationship between the variables, which is given below:

$$\Delta LCPI_t = C_i + \sum_{i=1}^{p} \alpha_i \Delta LGE_{t-i} + \sum_{i=1}^{p} \beta_i \Delta LCPI_{t-i} + U_{1t} \qquad (4)$$

$$\Delta LGE_t = C_i + \sum_{i=1}^{p} \delta_i \Delta LGE_{t-i} + \sum_{i=1}^{p} \gamma_i \Delta LCPI_{t-i} + U_{2t} \qquad (5)$$

4. RESULTS AND DISCUSSION

Table 1a and table 1b presents the result of the augmented Dickey-Fuller (ADF) test for all series involved in the analysis in logarithmic form in levels and first-differenced.

Table 1a: Unit root test (Sri Lanka)

Variable	Level	1st Difference	I(0)/ I(1)
LCPI	0.9847	0.0003*	I(1)
LGE	0.6780	0.0000*	I(1)
IR	0.0003*	0.0000	I(0)

Note: *indicates that variables are statistically significant at 1% level.

Table 1b: Unit root test (India)

Variable	Level	1st Difference	I(0)/ I(1)
LCPI	0.1771	0.0115**	I(1)
LGE	0.0328**	0.0000	I(0)
IR	0.0004*	0.0000	I(0)

Note: *, **indicates that variables are statistically significant at 1% and 5% level, respectively.

Augmented Dickey-Fuller (ADF) tests for Sri Lanka and India show that the consumer price index (LCPI) is non-stationary in level and becomes stationary after first difference. The ADF test were confirmed that Interest rate is stationary in level for both Sri Lanka and India. The government expenditure (LGE) is non-stationary in level and becomes stationary after the first difference for Sri Lanka while LGE is stationary in level for India. So we perform ARDL Bounds test to examine the existence of a cointegrating relationship between government expenditure and inflation. Test results are given in table 2a and 2b. Akaike Information Criteria (AIC) suggested the use of ARDL (1, 1, 1) model for both Sri Lanka and India.

Table 2a: The results of ARDL (1, 1, 1) Model (Sri Lanka)

Panel A: F- Test for the existence of a cointegration			
F- Bound test 95% level of confidence			
F- Statistics	Lower Bound		Upper Bound
11.93362	3.1		3.87
Panel B: Long run coefficient estimates			
Constant	LGE	IR	R^2
2.411737	0.079376**	-0.099647***	0.9993
(0.9287)	(0.0191)	(0.0697)	

Note: P- Value is given in parenthesis. **, *** indicates that variables are statistically significant at 5% and 10% level, respectively.

In Table 2a, calculated F- Statistics is 11.93 which is higher than the upper bound critical value (at 5% level of significance), which indicates that there exist cointegrating relationships between the variables considered in this study for Sri Lanka. This infers that all the explanatory variables simultaneously and jointly influenced the variations in the inflation. According to the regression results, LGE has a significant and positive impact on LCPI in the long run. If government expenditure is increased by 1%, inflation increases by 0.0793%, while other things being constant (Possible justification for the positive relationship between government expenditure and inflation is discussed in theoretical review). These results suggest that continuously increasing government expenditure will worsen the price stability in Sri Lanka. Further, IR has a significant and negative impact on LCPI. If the interest rate increased by 1%, inflation decreased by 0.0996%, while other were constant. In general, as interest rates are reduced, more people are able to borrow more money. The result is that consumers have more money to spend. This causes the economy to grow and inflation to increase.

Table 2b: The results of ARDL (1, 1, 1) Model (India)

Panel A: F- Test for the existence of a cointegration			
F- Bound test 95% level of confidence			
F- Statistics	Lower Bound		Upper Bound
10.10650	3.1		3.87
Panel B: Long run coefficient estimates			
Constant	LGE	IR	R^2
-4.264452	4.646972*	-0.294304*	0.9994
(0.2908)	(0.0015)	(0.0010)	

Note: P- Value is given in parenthesis. *indicates that variables are statistically significant at 1% level.

In Table 2b, calculated F- Statistics is 10.10 which is higher than the upper bound critical value (at 5% level of significance), which indicates that there exist cointegrating relationships between the variables considered in this study for India. This infers that all the explanatory variables simultaneously and jointly influenced the variations in the inflation. According to the regression results, LGE has a significant and positive impact on LCPI in the long run. If government expenditure is increased by 1%, inflation will be increased by 4.6469%, while other things being constant. Further, IR has a significant and negative impact on LCPI. If interest rate is increased by 1%, inflation will be decreased by 0.2943%, while other things being constant. In the long run, there is a positive relationship between government expenditure and inflation in both countries. But the impact of government spending on inflation is greater in India than in Sri Lanka. George-Anokwuru and Ekpenyong (2020) also found the same conclusion for Nigeria, that in the long run, government expenditure has negative and statistically significant impact on inflation.

Table 3a: The results of Error correction representation for the selected ARDL (1, 1, 1) Model (Sri Lanka)

Short run coefficient estimates and error correction representation				
Lag order	$\Delta LCPI$	ΔLGE	ΔIR	ECT(-1)
0		0.658653*** (0.0946)	-0.007537* (0.0000)	-0.638668* (0.0034)
1	1.106639* (0.0000)	0.026536 (0.4789)	0.002316** (0.0262)	
R^2	0.757786			

Note: P- Value is given in parenthesis. *, **, *** indicates that variables are statistically significant at 1%, 5% and 10% level, respectively.

Accordingly, ECT (-1) carries a negative sign, which is significant, indicating that there should be an adjustment towards a steady state line with the speed of 63.8% one period after the exogenous shocks in Sri Lanka. The results also provide support to the Keynesian view that one of the possible channels through which government spending can influence inflation is through its effects on aggregate supply and aggregate demand. Government spending boosts aggregate demand through increase in public consumption and investment. Current year IR has a negative and significant impact on LCPI. Whereas, the previous year LCPI, IR (at lag1) and current period LGE have a positive and significant impact on LCPI in the short run. Nguyen (2015) concludes that the fiscal deficit, government expenditure, and interest rates are positively correlated with inflation in short run for Sri Lanka. The Fisher hypothesis suggests that there is a positive relationship between inflation and the interest rate in any economy in the world. This notion is based on the understanding that both variables are money driven affecting both the demand and supply side of an economy, as in the case of debtors and creditors (Semuel & Nurina, 2014). In the short run, with supply being inelastic, increased demand will push prices up. On the supply side, as the government raises its spending or public savings drops, interest rates will rise and investment of the private sector will consequently shrink. As a result, aggregate supply contracts, pushing prices even higher.

Table 3b: The results of error correction representation for the selected ARDL (1, 1, 1) model (India)

Short run coefficient estimates and error correction representation				
Lag order	$\Delta LCPI$	ΔLGE	ΔIR	ECT(-1)
0		0.006962 (0.9211)	-0.002589 *** (0.0683)	-0.939410* (0.0001)
1	1.201637* (0.0000)	0.153534** (0.0238)	-0.002050 (0.1394)	
R^2	0.613303			

Note: P- Value is given in parenthesis. *, **, *** indicates that variables are statistically significant at 1%, 5% and 10% level, respectively.

Accordingly, ECT (-1) carries a negative sign, which is highly significant, indicating that there should be an adjustment towards a steady state line with the speed of 93.9% one period after the exogenous shocks in India. However, long term adjustment speed is higher in India than Sri Lanka. The previous year LCPI and LGE (at lag 1) have positive and significant impact on LCPI in the short run. Further, current year IR has a negative and significant impact on LCPI of India. Next, it has been checked the diagnostics of the selected model for both countries. The results are given below:

Table 4a: The results of diagnostic test (Sri Lanka)

Diagnostic	Test applied	P- Value	Conclusion
Serial correlation	Breusch-godfrey serial correlation LM test	0.1007	No serial correlation
Normality	Jarque- Bera	0.341167	Error is normal
Heteroscedasticity	White test	0.7571	No heteroscedasticity
Omitted variable	Ramsey RESET test	0.0186	No omitted variables

Table 4b: The results of diagnostic test (India)

Diagnostic	Test applied	P- Value	Conclusion
Serial correlation	Breusch-godfrey serial correlation LM test	0.3106	No serial correlation
Normality	Jarque- Bera	0.532726	Error is normal
Heteroscedasticity	White test	0.4662	No heteroscedasticity
Omitted variable	Ramsey RESET test	0.3931	No omitted variables

The results of the diagnostic tests show that model for both Sri Lanka and India are correctly specified and the parameters are correctly estimated. Because, all the diagnostics test probability values greater than the significant level of 1%.
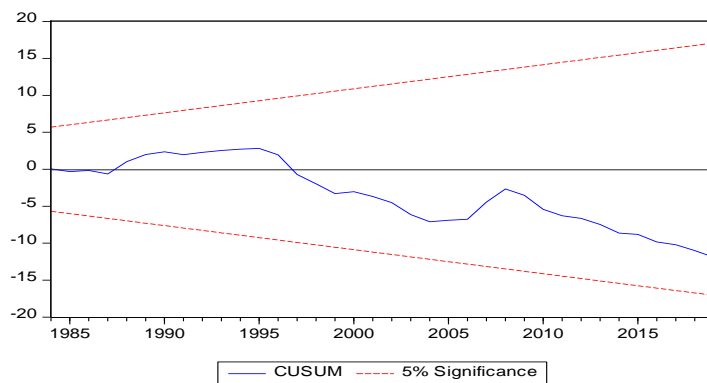

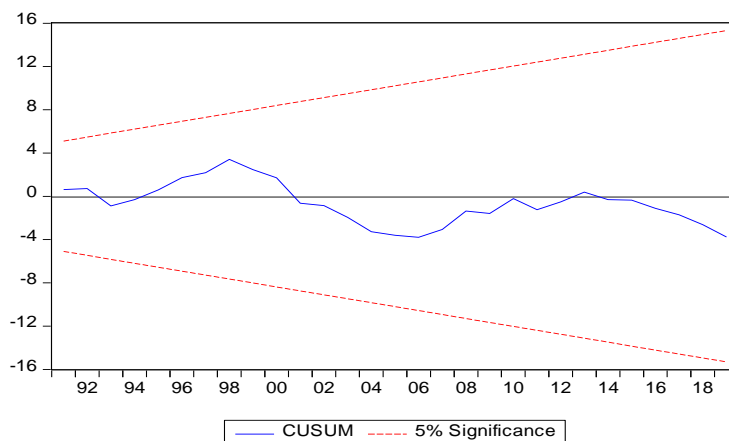
Figure 1a: Cusum test for model stability (Sri Lanka)

Figure 1b: Cusum test for model stability (India)

Based on the figure 1a and 1b residual lines are within the red line. The residual line is lies within the 5% critical line, which proves models are stable for both Sri Lanka and India.

Table 5a: The results of Granger Causality Test (Sri Lanka)

Null hypothesis	Obs	F- statistics	Prob.
D_LGE does not Granger Cause D_LCPI	40	4.08088**	0.0255
D_LCPI does not Granger Cause D_LGE	40	1.30810	0.2832

Note: ** indicates that variables are statistically significant at 5% level.

The table 5a above and 5b below shows the results of Granger causality test for Sri Lanka and India. The Granger Causality test results for Sri Lanka suggest a unidirectional causality that runs from government expenditure to inflation.

Table 5b: The results of Granger Causality Test (India)

Null hypothesis	Obs	F- statistics	Prob.
D_LGE does not Granger Cause D_LCPI	40	0.98657	0.3830
D_LCPI does not Granger Cause D_LGE	40	0.63923	0.5337

The Granger Causality test results for India suggest that there is no causality relationship between government expenditure and inflation. Some of the existing empirical literature also found similar to these findings for India (Habibullah et. al., (2011) and Tiwari et. al., (2012)).

In summary, the ARDL Bound test and Error Correction Model results show that government spending and inflation are positively correlated both in the

long-run and in the short-run for Sri Lanka and India. Further, the Granger Causality test emphasized that there is a unidirectional causality that runs from government expenditure to inflation in Sri Lanka. But there is no causality relationship between government expenditure and inflation in India.

5. CONCLUSION AND POLICY IMPLICATION

The study was aimed at conducting a comparative analysis between Sri Lanka and India, with respect to the impact of each country's government expenditure on inflation. The study used annual time series data from 1977 to 2019 for both countries and the ARDL Co-integration technique developed by Pesaran et al. (2001) was followed to empirically estimate the dynamic relationships between the two variables: Government Expenditure and Inflation. For better interpretation, the model also included Interest Rates as another explanatory variable. Bounds testing technique was employed to identify the existence of co-integrating relationship as well as long run correlation between variables. Once we confirmed the co-integrating relationship, the short run dynamics of parameters and long run adjustment of the model were estimated by the error correction version of the ARDL model pertaining to the variables in the equation. As the final step, Granger Causality test was used to test the the causality between the variables.

The results for Sri Lanka reveal that there is a statistically significant and positive relationship between government expenditure and inflation in the long run. That is 1% increase in government expenditure tends to increase inflation by 0.0793%, other things held constant. This suggests a possible worsening of price stability in the face of continuously increasing government expenditure. Similarly, the regression output of India indicates that government expenditure has a positive and a statistically significant impact on inflation in the short run as well as in the long run. The results indicate that a 1% increase in government expenditure leads to an increase in the inflation by 4.6469%, depicting that the impact of government expenditure on inflation in India is much higher than that of Sri Lanka. The coefficient of Error Correction Terms (ECT) of Sri Lanka and India carry a negative sign and are statistically significant indicating that there should be a significant adjustment towards steady state line at a speed of 63.8% and 93.94% respectively for Sri Lanka and India, one period after the exogenous shocks. The results also provide support to the Keynesian view that one of the possible channels through which government spending can influence inflation is through its effects on aggregate supply and aggregate demand. Government spending boosts aggregate demand through an increase in public consumption and investment. This can also be explained by looking at the funding sources for government expenditure. If the expenses were met by raising taxes this could be the possible negative impact on private consumption as explained in the

theoretical section of the paper. However, if the expenses are covered via printing money, following the Fisher equation, there will be, once again, inflationary pressure on the economy.

The results of Granger causality test for Sri Lanka suggest a unidirectional causality stemming from government expenditure towards inflation whereas results for India does not identify any causality relationship. Tiwari et al, (2012) also detected similar evidence with respect to India. Thus, this indicates that it is only within Sri Lanka that the government has shown evidence as a factor causing inflation.

Looking at the existing literature, Ekanayake (2012) has come to similar conclusions with respect to government expenditure and its impact on inflationary pressure. Nguyen (2015) has proved that fiscal deficit and government expenditure are statistically significant determinants of inflation.

In sum, the analysis' congruency with the theories as well as empirical evidence makes it clear that government expenditure has a positive and significant impact on inflation in both India and Sri Lanka. There exists, within the Sri Lankan context, a unidirectional impact on inflation coming from government expenditure however, no such causality can be detected for India.

This highlights Sri Lanka's need to manage its public expenditure and its impact on money supply in order to achieve stability in price levels. It is advisable for fiscal as well as monetary policy makers to work closely in policy management so as to control inflationary pressure on the economy resulted by rising government expenditure. Cutting unnecessary public expenditure and privatization of low performing government enterprises to increase efficiency and gains too can be taken up as measures along the way to reducing overall public expenses. Government should also focus on increasing its revenue base by improving tax income. However, policy makers should be vigilant in increasing government revenue without posing too much pressure on the lower income earners when restructuring the tax system. Furthermore, same vigilance is required when it comes to cutting government expenditure for it might affect welfare programs benefiting the poor.

This paper attempts to fulfil the existing gap in literature surrounding a possible direct connection between inflation and government expenditure between government expenditure and inflation. Given the bulk of government expenditure in Sri Lanka and India and the rising inflation in both economies this study thus, fulfils a timely requirement.

Looking at the limitations of the study: The model only includes interest rates as a control variable since variables such as money supply and exchange rate

could not be included due to normality issue and the presence of auto-correlation. Furthermore, data before 1977 has been ignored as a result of Sri Lanka's structural changes. For future research, comprehensive analyses including years with structural changes and an extension of the same model incorporating more developing countries from the Asian region can be suggested.

REFERENCES

Annual report of Central Bank of Sri Lanka. (2021).

Afonso, A., Şen, H., & Kaya, A. (2018). Government Size, Unemployment, and Inflation Nexus in Eight Large Emerging Market Economies.

Buchhols.K. (2021). *How inflation rates are increasing around the world, world economic forum,5-7.*

Campillo, M., & Miron, J. A. (1997). Why does inflation differ across countries?. In *Reducing inflation: Motivation and strategy* (pp. 335-362). University of Chicago Press.

Countryeconomy.com. (2022). Available from https://countryeconomy.com Retrieved on 24 May 2022

Devapriya, T. N., & Ichihashi, M. (2012). How does the budget deficit affect inflation in Sri Lanka. *Economics Journal*, *54*, 879-887.

Dikeogu, C. C. (2018). Public spending and inflation in Nigeria. *International Journal of Advanced Academic Research. Social and Management Sciences*, *4*, 12.

Ekanayake, H. K. (2012). The link between fiscal deficit and inflation: Do public sector wages matter. *Australia South Asia Research Centre*, *14*, 1-34.

George-Anokwuru, C. C., & Ekpenyong, B. I. (2020). Government expenditure and inflation in Nigeria. *Journal of Economics and Management Sciences*, *3*(2), p29-p29.

Habibullah, M. S., Cheah, C. K., & Baharom, A. H. (2011). Budget deficits and inflation in thirteen Asian developing countries. *International Journal of Business and Social Science*, *2*(9).

Kulatunge, S. (2017). Inflation dynamics in Sri Lanka: An empirical analysis. *Staff Studies*, *45*(1-2).

Neil.A.O. (2021). global inflation rate from 2016 to 2026; Statista: economy and political.

Nguyen, B. (2015). Effects of fiscal deficit and money M2 supply on inflation: Evidence from selected economies of Asia. *Journal of Economics, Finance and Administrative Science*, *20*, 49-53.

Nguyen, T. D. (2019). Impact of government spending on inflation in asian emerging economies: Evidence from india, china, and indonesia. *The Singapore Economic Review*, *64*(05), 1171-1200.

Olayungbo, D. O. (2013). Government spending and inflation in Nigeria: An asymmetry causality test. *growth*, *10*(6).

Semuel, H., & Nurina, S. (2014). Analysis of the effect of inflation, interest rates, and exchange rates on Gross Domestic Product (GDP) in Indonesia (Doctoral dissertation, Petra Christian University).

Sood.A.K. (2018). Government spend, economic growth, deficit and inflation in India: an analysis of aggregates.

Tiwari, A. K., Tiwari, A. P., & Pandey, B. (2012). Fiscal deficit and inflation: What causes what? The case of India. *Journal of International Business and Economy*, *13*(1), 57-81.

Wambui.T.V. (2013). Effect of government expenditure, taxes and inflation on economic growth in Kenya.

World Bank Development Indicators. (2022)