# REVISITING THE ROMER'S HYPOTHESIS:
## Time Series Evidence from Small Open Economy

**Ihtisham ul HAQ,\* Mohammed Saud M. ALOTAISH,\***
**Naradda Gamage Sisira KUMARA,\* and Shavkat OTAMURODOV\***

Considerably more commodities are available to consumers in open economies and open-ness brings these at cheaper rate, according to Romer's hypothesis. The Johansen cointe-gration technique nullified Romer's hypothesis that greater openness brings less inflation. Economic growth had significant positive impact on inflation, which is according to realm of Phillips curve and Okun's law. Supply of money was also documented by positive effect on inflation, as the classical neutrality of money reveals. This study recommended that Sri Lankan government should be very careful in policies regarding supply of money and open-ness as it hurts consumers.

## I. Introduction

A moderate inflation is goaded to economic development. Some economists argued that prevailing structure rigidities in developing countries could be major source of inflation. Rigidity in nominal prices, vulnerability to supply shock, narrow tax rate and underdeveloped financial sector are comprised in these rigidities [Krugman (1996)]. The opponents of this argument are of the view that high inflation could lead to inefficient transactions and speculations and consequently could lead to wastage of resources [Krugman (1991)]. The question is how to get rid of high inflation. Some economists suggested that openness of an economy may be one way to answer this. For instance, Triffin and Grudel (1962) documented that open-ness enhances cheaper availability of goods and services, as more commodities are there in the open economy to consume.

The channel for openness to influence inflation is through its positive impact on output and this will ease pressure on prices [Jin (2000)]. The shock to prices due to fluctuations in domestic farm output is likely to ease as economy opens up. Thus, more openness will reduce fluctuations in price level [Sanyal (1996), Okun (1981), Kalecki (1972)]. According to Romer's hypothesis [Romer (1993)] an inverse relationship exists between inflation and openness. The argument is that inflation as a result of increase in supply of money is upset by openness of

\*College of Economics and Trade, Hunan University, China.

the economy. Excessive money supply is likely to depreciate exchange rate and this depreciation is more in small open economies, thus, monetary authorities have less incentive to go for expansionary monetary policy, consequently this curbs inflation.

## II.  Literature Review

After presenting the introduction in Section I, literature review is given in Section II. An overview of the Sri Lankan economy is discussed in Section III and the research methodology is presented in Section IV. Section V gives results and its interpretation and at the end of the paper, Section VI conclude the study outlining recommendations to the policy makers.

The association between inflation and openness is analyzed theoretically and empirically in a number of studies. Rogoff presented a theoretical model and documented that high openness of an economy contributes to less inflation. Ashra (2002) argued that openness leads to better allocation of resources and increases capacity utilization, procurement of production, enhances efficiency and encourages foreign direct investment. All these are stimulants to economic growth and leads to reduction in prices.

Openness may not cause less inflation, as there are trade barriers, specifically import restrictions [Kirkpatrick and Nixon (1973)]. This opponent view is supported in some studies. Evans (2007) argued on two aspect of open economy. First, authorities in open economies have less control to check on inflation. The monetary authority in such economy may impose inflation to balance money growth. Imports of raw material and final goods may be the second cause to have a positive association between openness and inflation.

Most of the researchers who were interested to check the effect of openness on inflation, worked on the cross-sectional data analysis. They either applied the least square or panel data analysis. Romer (1993) and Terra (1998) applied the ordinary least squares (OLS), whereas, Sachsida et al. (2003) and Alfaro (2005) utilized the panel data to assess this relationship, just to mention few studies.  However, other researchers argued that a country level study is better to capture the true picture of openness. Thus, authors are interested to discuss the time series studies confined to a single economy. Covering the period from 1960 to 2007 Mukhtar (2010) conducted the time series study for Pakistan to determine the impact of openness on inflation. The problem of non-stationary was checked through unit root tests. Vector error correction model (VECM) based on co-integration test confirmed the negative association between inflation and openness in long run. Similarly, Zakaria (2010) also carried out a time series study for Pakistan, covering the period from 1947 to 2007. However, the generalized method of moments (GMM) technique was adopted to explore the relationship between inflation and openness. Results of his research

work navigated the Romer's hypothesis and found a positive effect of openness on inflation. Jafari et al. (2011) also examined this relation for Iranian economy through time series analysis. However, they applied bound testing approach instead of Johansen (1988), Johansen, and Juselius (1990) co-integration test. Their results navigated the long-run negative relation between inflation and openness.

Kim and Lee (2012) conducted a time series study for South Korea to investigate the impact of trade liberalization and trade openness on economic growth. Results of the study confirmed the long-run association between trade liberalization, openness and growth. It was argued that this long-run relation made possible for policy makers to target liberalization and openness together to achieve growth sustainability in South Korea. The findings also documented that openness has greater sensitivity with growth than the trade liberalization.

Lartey (2012) carried out a study on whether inflation in non-tradable goods has sensitivity to financial openness or not. The study posited that inflation in non-tradable goods showed high sensitivity to openness. Further, the argument was that in the presence of monetary policy, optimality openness increased the consumer welfare.

Afzal et al. (2013) investigated the relationship between inflation and openness in the trivariate analysis for the period 1972-2010. The researchers used three proxies to capture openness i.e., export to GDP ratio, import to GDP ratio, and trade to GDP ratio. They applied bound test to figure out this association of inflation and openness. Results of this approach confirmed negative association between inflation and openness in short-run, as well as in the long-run. A positive association of inflation was documented with economic growth and they attributed this line with Phillips curve and Okun's law. The researchers recommended openness favored policies to combat inflation and economic growth to be added as source of inflation, as some studies did not include it to explain determinants of inflation in Pakistan.

Ratnasiri (2009) carried out the time series study to examine determinants of inflation in Sri Lanka. This study covered the period from 1980 to 2005. Unit root tests and VAR analysis were performed for this purpose. Results of the study pointed out that supply of money and rice price growth were the main determinants of inflation in Sri Lanka and the economic growth and exchange rate were insignificant in this regard. The author stressed on the execution of monetary policy with care to fight inflation and maintain economic growth. Besides the single country time series studies, Kurihara (2013) examined the relation between international trade openness and inflation in Asia and the OECD countries in a panel study. This panel study covered the period from 1990 to 2011. GMM and fixed effect models for both areas were performed. These results documented significant positive effect of international trade openness on inflation. The strength of association was stronger in Asia region than the OECD.

The impact of trade openness on domestic inflation is not yet settled in the economic literature. Researchers argued that instead of finding whether openness brings less inflation or not, it is to be tested in the cross-country studies. In fact, it is better to find whether trade openness is good for consumers in terms of cost or not, in a country specific study. Thus, this study is the first attempt to analyze the relationship between inflation and openness for Sri Lanka. Hence, it will fill the literature gap, as well as, it is an attempt to assess the effect of openness on inflation in small open economy.  This study finds out that openness does not bring less inflation and rejects the Romer's hypothesis in case of Sri Lanka. The rest of the paper is ordered such that Section II presents overview of the Sri Lankan economy.

## III. Overview of the Sri Lankan Economy

Total size of the Sri Lankan economy was US$ 67 billion in the year 2013. The growth rate remained high in recent years and now it is ahead of the other South Asian economies, on the basis of per capita which stood at US$ 3280. The main sectors of the economy are tea export, textile, rice and other agricultural products, apparel and tourism, while overseas employment also play an important role in the economic development of Sri Lanka. The composition of export seems positive as compared to past with information technology exports of US$ 79.5 million. The economy is becoming knowledge based as the country has produced the second largest number of chartered accountants in the world and the computer literacy reached to 40 per cent. Domestic employment reached to 95.5 per cent of the labor force and inflation stood at a mid-single digit. It maintained the foreign reserves at a level that can last for five months import bill. Current account deficit decreased to 3.9 per cent as compared to 9.5 per cent in 2008. These economic indicators are meaningless if poverty is not lessened. Number of people below poverty line declined to 6.7 per cent and multi-dimensional poverty declined to 1.8 per cent [Government. of Sri Lanka (2013)].

The average GDP growth and inflation is 5.4 per cent  and 9.4 per cent  since 1991. This scenario is depicted in Figure 1. There was a continuous decrease in inflation from 1991 to 1995 with an average growth of 5.1 per cent. One can observe a sharp increase in inflation reaching to 15.9 per cent in 1996 and a decline in growth rate from 5.5 to 3.5 per cent. This high inflation rate was followed by reduction in inflation until 1999 as it stood at 5 per cent. However, this down-turn in inflation was also followed by low growth rate from 1997 to 1999.

Both the economic indicators remained at 6 per cent in 2000. However, the economy was confronted with high inflation (14.15 per cent) and negative growth rate of 1.5 per cent in 2001. However, its performance was better as inflation was on decline and the growth rate moved up from negative to positive (5.9 per cent)
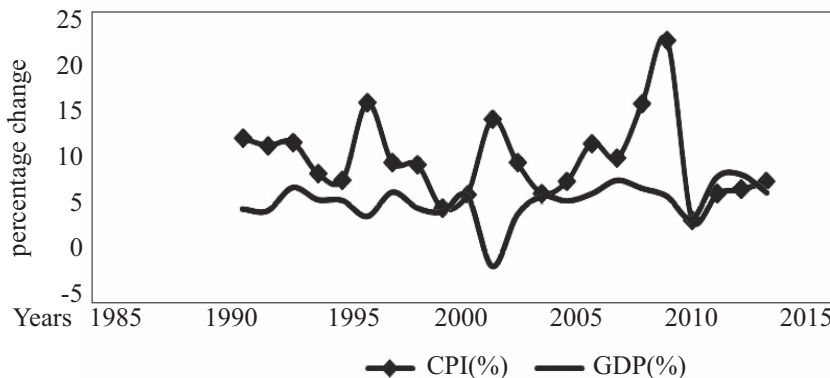
**FIGURE 1**

Inflation and Economic Growth

between 2001 and 2003. Since 1991 the inflation creeped up and reached (all time) to high level of 22.56 per cent in 2008. Then a sudden decline in inflation and growth was observed in 2009. The inflation dropped from 22.56 to 3.6 per cent in 2009. The growth rate was 3.5 per cent in 2009. Inflation is creeping up since 2009 as compared to economic growth, which is on down-turn since 2010. One can witness the high volatility in both rates, which is not good for forecasting about the future economic situation, and from the investors point of view.

## IV. The Research Methodology

### 1. The Model and Description of Variables

To examine the impact of trade openness on inflation the model is specified on the basis of literature studied. It can be written as follows:

$$Inflation = f\,(Openness)$$

However, the economic growth and supply of money worked as basic variables identified by numerous researchers, the later variable will determine the impact of monetary policy on inflation. Thus, inflation is the function of economic growth, supply of money and openness, which can be written as in Equation (1).

$$CPIg_t \;=\; \beta_0 \;+\; \beta_1 GDPg_t \;+\; \beta_2 lM_t \;+\; \beta_3 lTO_t \;+\; \varepsilon_t \qquad (1)$$

where *CPIg* represents the annual growth rate of consumer price index and, *GDPg* is the annual growth rate of real GDP as a proxy for economic growth. *lM* is the natural log of supply of money (broad money M2) and its unit is in local currency and *lTO* is trade openness, as proxy for openness and it is the ratio of export plus imports to gross domestic product (GDP). So as the signs of coefficients of independent variables are concerned, $\beta_1$ has to be positive; this is based on the Phillips curve and the Okun's law. According to the classical theory of money, money remains neutral in the long-run. It means that increase or decrease of it does not have effect on real variables in the long-run as it , only affect the nominal variables. Thus, a positive sign of $\beta_2$ is expected. The sign of $\beta_3$ is ambiguous, may be positive or negative, depends on whether negative or positive impact of openness is dominant.

## 2. Source of the Data

In this study data on inflation, economic growth, supply of money and trade openness was analyzed from 1968 to 2010 for Sri Lankan economy. Data on all included variables was taken from the world development indicators (WDI), World Bank (WB) online database. Natural log of variables was restricted to variables which were not in percentage form so that coefficients could be interpreted as elasticity.

## 3. The Unit Root Test

The data of a variable is considered stationary if its mean, variance and covariance stay constant over period. Time series data is trended and suffers from non-stationarity problem. If data is non-stationary and least square is applied, this may lead to spurious regression. Unnecessarily standard errors will be very low and t-test value will be very large. A variable, which has to be insignificant, turns out to be significant. It is hard to rely on these estimates of spurious regression. A test is required to deal with such problems. Johansen (1988); Johansen and Juselius (1990) tests of co-integration and multivariate co-integration provide this solution. However, first, a test is needed to check the non-stationarity problem. Augmented Dickey-Fuller (ADF) test [Dickey and Fuller (1979)] is to be applied and the equations of this test can be written as in the following equations.

$$\Delta z_{t-1} \; = \; \gamma z_{t-1} \; + \; \beta_i \; \sum \Delta z_{t-1} \; + \; \varepsilon_t \tag{2}$$

$$\Delta z_{t-1} \; = \; \phi_0 \; + \; \gamma z_{t-1} \; + \; \beta_i \; \sum \Delta z_{t-1} \; + \; \varepsilon_t \tag{3}$$

$$\Delta z_{t-1} \; = \; \phi_0 \; + \; at \; + \; \gamma z_{t-1} + \beta_i \; \sum \Delta z_{t-1} \; + \; \varepsilon_t \tag{4}$$

## 4. Co-Integration and Vector Error Correction Model (VECM)

The method of co-integration developed by Johansen (1988) and Johansen and Juselius (1990) can be applied only and only if all the studied variables become stationary at the first difference. If ADF confirms stationarity at the first difference then Johansen (1988) and, Johansen and Juselius (1990) technique of co-integration is such that it takes variables at the first difference without losing the long-run relation. VECM based on co-integration provide both the short and long run relations. Numbers of equations in VECM equals to number of variables. Equations (5) to (8) are VECM equations for this study. The difference of dependent variable is regressed on its own difference lag and the difference lagged of all independent variables in each equation. In each equation error correction (EC) represents equilibrium adjustment; $\varphi$ is its strength, $\varepsilon_t$ is error term and $\Delta$ is the difference operator. It is worth mentioning that model is in equilibrium in which error correction is negative and significant.

$$\Delta CPIg_t = \beta_1 + \sum_{i=1}^{l} \gamma_{1i} \Delta CPIg_{t-i} + \sum_{i=1}^{m} \gamma_{1i} \Delta GDPg_{t-i} + \sum_{i=1}^{n} \gamma_{1i} \Delta lM_{t-i} + \sum_{i=1}^{n} \gamma_{1i} \Delta lTO_{t-i} + \varphi_1 EC_{t-1} + \varepsilon_{1t} \qquad (5)$$

$$\Delta lGDPg_t = \beta_2 + \sum_{i=1}^{p} \gamma_{2i} \Delta CPIg_{t-i} + \sum_{i=1}^{q} \gamma_{2i} \Delta GDPg_{t-i} + \sum_{i=1}^{r} \gamma_{2i} \Delta lM_{t-i} + \sum_{i=1}^{s} \gamma_{2i} \Delta lTO_{t-i} + \varphi_2 EC_{t-1} + \varepsilon_{2t} \qquad (6)$$

$$\Delta lTO_t = \beta_3 + \sum_{i=1}^{p} \gamma_{3i} \Delta CPIg_{t-i} + \sum_{i=1}^{q} \gamma_{3i} \Delta GDPg_{t-i} + \sum_{i=1}^{r} \gamma_{3i} \Delta lM_{t-i} + \sum_{i=1}^{s} \gamma_{3i} \Delta lTO_{t-i} + \varphi_3 EC_{t-1} + \varepsilon_{3t} \qquad (7)$$

$$\Delta lM_t = \alpha_4 + \sum_{i=1}^{l} \alpha_{1i} \Delta CPIg_{t-i} + \sum_{i=1}^{m} \alpha_{1i} \Delta GDPg_{t-i} + \sum_{i=1}^{n} \alpha_{1i} \Delta lM_{t-i} + \sum_{i=1}^{o} \alpha_{1i} \Delta lTO_{t-i} + \varphi_4 EC_{t-1} + \varepsilon_{4t} \qquad (8)$$

## V. Results and its Interpretations

## 1. Result of Unit Root Test and Lag Length Criteria

Result of ADF unit test is given in Table 1. This test proved the problem of non-stationarity when variables were at their level and all variables became stationary at first difference. Schwarz information criterion (SC) and Hannan-Quinn information criterion (HQ) articulated the lag structure to be taken as one in VECM. Lag order results are provided in Table 2.

## 2. Long Run Relationship and Estimates

The co-integration test suggested a long run relation for the studied variable (see Table 3). Trace and the Max-Eigen statistics assured a single co-integration

vector. Thus, it can be concluded that there is long-run relationship between inflation, openness, economic growth and supply of money in Sri Lankan economy.

## TABLE 1

### Result of ADF Unit Root Test

| Variables | Level | Prob. | First diff. | Prob. | Decision |
|-----------|-------|-------|-------------|-------|----------|
| CPIg | -2.3 | 0.32 | -4.7 | 0.00 | I(1) |
| GDPg | -1.5 | 0.89 | -5.6 | 0.00 | I(1) |
| 1M | -2.9 | 0.15 | -3.9 | 0.02 | I(1) |
| 1TO | -2.2 | 0.48 | -5.6 | 0.00 | I(1) |

## TABLE 2

### Lag Length Criteria Results

| Lag | SC | HQ |
|-----|-----|-----|
| 0 | -1.58 | -1.91 |
| 1 | -13.41* | -14.82* |
| 2 | -11.62 | -12.59 |

*indicates lag length selected by SC and HQ criteria.

## TABLE 3

### Co-integration Test: Long Run Relationship

| Hypothesized No. of CE(s) | Trace Statistic | 0.05 Critical Value | Max- Eigen Statistic | 0.05 Critical Value |
|---------------------------|-----------------|---------------------|----------------------|---------------------|
| None | 68.23* | 63.87 | 43.46* | 33.15 |
| At most 1 | 41.59 | 42.92 | 22.82 | 25.82 |
| At most 2 | 25.11 | 24.87 | 16.67 | 19.39 |
| At most 3 | 10.92 | 12.11 | 10.02 | 12.14 |

*denotes rejection of the hypothesis at the 0.05 level.

The long-run estimates based on VECM are shown in Table 4. Economic growth and money growth have significant positive effect on inflation. Trade openness also has positive but insignificant effect. These results contradicts Romer's (1993) idea and validates Terra (1998), Mukhtar (2010) and Jafari et al. (2011) findings among others researchers who also find a positive correlation of inflation with trade openness. The reason that why openness did not reduce inflation in Sri Lanka is that their export base is weak and primary goods constitute the large amount in her exports. Second, her major imports are crude and refined oil, vehicles, computers, etc. Third, the USA and UK makes one-third of total exports of Sri Lanka as there is no comparison on the basis of per capita. Therefore, goods which are included in the domestic consumer's basket, become expensive as foreign market offers higher price. Fourth, Sri Lankan economy structure is not strong as their exports are not based on knowledge-based industry, rather it requires unskilled labor, although she has a good literacy and education system as compared to other economies in the South Asian region. Lastly, there is a lack of competitive industrial environment and less role of private sector in the industrial set up and the exports.

**TABLE 4**

Long Run Estimates

| Dependent variable: Inflation (CPIg) | | |
|---|---|---|
| Independent Variables | Coefficient | t-statistics |
| Economic growth (GDPg) | 1.58*** | 2.40 |
| Supply of Money (lM) | 0.51** | 1.98 |
| Trade openness (lTO) | 0.41 | 1.34 |

** and *** shows significance at 1 and 5 per cent respectively.

The short-run relation among variables based on error correction model (ECM) is presented in Table 5. This model is based on Equation (5). It can be witnessed that openness is the only variable which has short-run relationship with inflation as compared to the other independent variables. The value of error correction term documented that ECM is in equilibrium and it corrected itself from the external shock by 12 per cent per annum.

The diagnostic tests for auto-correlation, hetroskedasticity (White test), Jarque-Berra normality test and Ramsey RESET test, for functional form of the model were carried out. ECM is free from serial correlation, hetroskedasticity, normality problem, and the functional form of model is correct. Results of these diagnostic tests are provided in Table 6.

This model also qualified the stability test of squares as cumulative sum of re-cursive residual (CUSUM) and the cumulative sum of squares of recursive residual (CUSUMQ). Critical bounds at 5 per cent are presented by straight lines in Figure 2. The plots of both tests are well within the given limits and it can be stated that all coefficients are stable.

## TABLE 5

### Error Correction Model Results

| Independent Variables | Coefficient | Prob. |
|---|---|---|
| d(GDPg(1)) | 0.33 | 0.12 |
| d(lM(1)) | -0.02 | 0.80 |
| d(lTO(1)) | -0.21*** | 0.03 |
| Constant | 0.18*** | 0.00 |
| ecm(-1) | -0.12*** | 0.02 |
| F-stat. | 4.19 | 0.00 |
| $R^2$ | 0.53 | |

** and *** shows significance at 1 and 5 per cent respectively.

## TABLE 6

### Diagnostic Tests Results for ECM

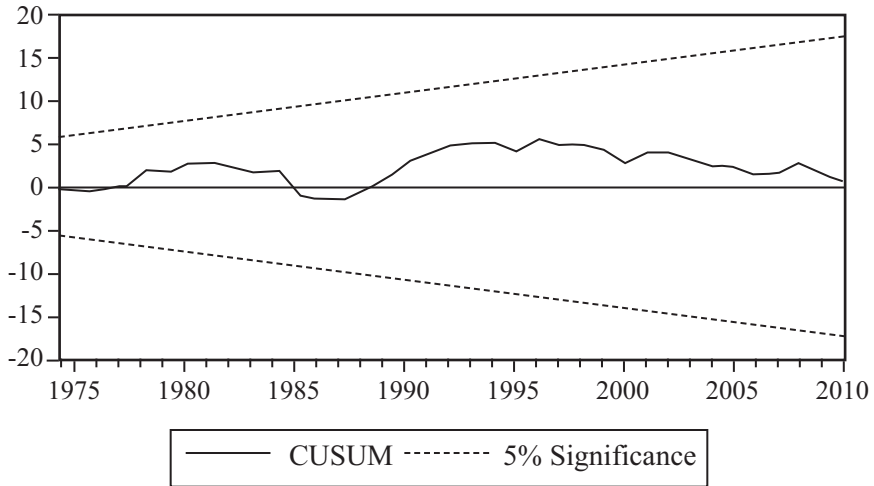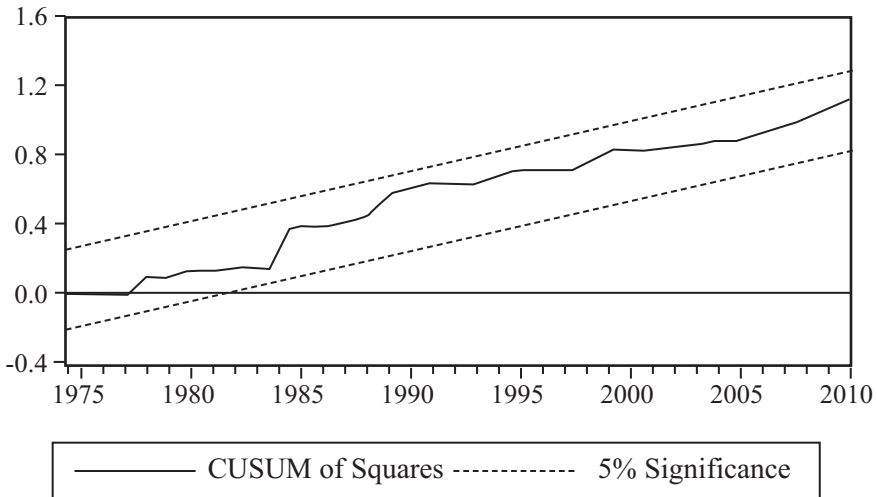| Test | Test Stat. | Prob. |
|---|---|---|
| ARCH | 0.12 | 0.59 |
| Auto-correlation | 1.13 | 0.35 |
| Hetroskedasticity | 0.80 | 0.71 |
| JB-normality | 0.10 | 0.90 |
| Ramsey RESET test | 1.85 | 0.17 |

**FIGURE 2(a)**

CUSUM Stability Test



**FIGURE 2(b)**

CUSUM (Q) Stability Test

### 3. *Short-Run Causality Based on VECM*

The basic model of this study, as presented in the equation was found in equilibrium and adjusted itself from shock about 12 per cent, as value of error correction term (ECT) and revealed in the last column of Table 7. As discussed in the methodology (Section III), a model is in equilibrium if its ECT value is negative and significant. Other than the basic model [Equation (5)], among the other three models, only the model for 'economic growth' is in equilibrium, as its ECT value is negative and significant. Bi-directional causality was documented in short-run between openness and the economic growth. A unidirectional causation from openness to money growth was also evidenced.

### TABLE 7

Causality Results based on VECM

|              | D[CPIg(1)] | D[GDPg(1)] | D[LM(1)] | D[LTO] | ECT |
|--------------|------------|------------|----------|--------|-----|
| D[CPIg(1)]   | —          | 0.09       | -0.02    | -0.21  | -0.12 |
|              |            | (1.79)     | (-0.01)  | (-0.87) | (-3.10) |
| D[GDPg(1)]   | -0.39      | —          | 0.17     | -1.39* | -0.06 |
|              | (-0.84)    |            | (0.24)   | (-1.88) | (-2.90) |
| D[LM(1)]     | -0.08      | -0.02      | —        | 0.33*  | 0.05 |
|              | (-0.85)    | (-0.41)    |          | (1.98) | (0.60) |
| D[LTO(1)]    | 0.14       | 0.10*      | 0.02     | —      | 0.14 |
|              | (1.57)     | (2.70)     | (0.19)   |        | (1.91) |

*Note:* t-values are shown in parenthesis.

## VI. Conclusions and Recommendations

This study was conducted to testify Romer's hypothesis for Sri Lanka. To achieve this main objective, time series data on inflation and openness from 1968 to 2010 was examined with economic growth and money growth as control variables. Augmented Dickey-Fuller test documented that studied variables are free from stationarity problem at first difference. Johansen and Juselius test established the long-run relation between variables. Economic growth, supply of money and openness has positive effect on inflation. Thus, Romer's hypothesis doesn't hold in Sri Lanka. Short-run bidirectional causality between economic growth and openness was testified by VECM. However, ECM affirmed short-run relationship

between inflation and openness. It can be concluded that openness may bring inflation but has positive impact on economic growth. This study recommends that monetary and fiscal policy should be adopted with great care to curb inflation and achieve benefits from openness. Sri Lanka has to diversify its exports and steps are required to shift exports from agriculture to industrial goods. Measures have to be taken to increase the role of private sector and competitive environment has to be encouraged.

*College of Economics and Trade,*
*Hunan University, China.*

**Bibliography**

Afzal, M., M.E. Malik, Abdul R. Butt, and K. Fatima, 2013, Openness, inflation and growth relationships in Pakistan: An application of ARDL bounds testing approach, Pakistan Economic and Social Review, 51(1): 13-53.

Alfaro, L., 2005, Inflation, openness, and exchange rate regimes: The quest for short-term commitment, Journal of Development Economics, 77(1): 229-249.

Ashra, S., 2002, Inflation and openness: A case study of selected developing economies, Indian Council of Research on International Economic Relations, Working Paper No.84.

Balakrishnan, P., 1991, Pricing and Inflation in India, New Delhi: Oxford University Press.

Dickey, D.A., and W.A. Fuller, 1979, Distribution of the estimators for autoregressive time series with a Unit Root, Journal of the American Statistical Association, 74: 427-431.

Evans, R.W., 2007, Is openness inflationary? Imperfect competition and monetary market power, Federal Reserve Bank of Dallas, Globalization and Monetary Policy Institute, Working Paper No.1.

Samimi, Jafari A., S. Ghaderi, and B. Sanginabadi, 2011, Openness and inflation in Iran, International Journal of Economics and Management Engineering, 1(1): 42-49

Government of Sri Lanka, 2013, Ministry of Finance and Planning, Colombo, Sri Lanka, http://www.treasury.gov.1k.

Jin, J., 2000, Openness and growth: An interpretation of empirical evidence from East Asian countries, Journal of International Trade and Economic Development, 9: 5-17.

Johansen, S., 1988, Statistical analysis of cointegration vectors, Journal of Economics Dynamics and Control, 12: 231-254.

Johansen, S., and K.K. Juselius, 1990, Maximum likelihood estimation and inference on cointegration with application to the demand for money, Oxford Bulletin of Economics, 52: 169-210.

Kalecki, M., 1972, Selected essays on the economic growth of the socialist and the mixed economy, London: Cambridge University Press, : 1-37.

Kim, Y.K., and J.H. Lee, 2012, A sensitivity analysis regarding the impacts of trade openness and globalization growth: Empirical evidence from Korea, Journal of International Logistics and Trade, 10(2): 47-50.

Kirkpatrick, C.H., and F.I. Nixon, 1973, Inflation and openness in less developed economies: A cross-country analysis: Comment, Economic Development and Cultural Change, 26(1): 147–152.

Krugman, P., 1991, External shocks and domestic policy responses in: R. Dornbusch and P. Krugman, Zero inflation and fast growth: Just say no, The Economist, August 31, 1996.

Kurihara, Y., 2013, International trade openness and inflation in Asia, Research in World Economy, 4(1): 70-82

Lartey, E., 2012, Financial openness, non-tradable inflation and optimal monetary policy, Economics Letters, 117(3): 782-785.

Mukhtar, T., 2010, Does trade openness reduce inflation? Empirical evidence from Pakistan, The Lahore Journal of Economics, 15 (2): 35–50.

Okun, A.M., 1981, Prices and quantities: A macroeconomic analysis, Washington: The Brookings Institution.

Ratnasiri, H.P.G.S., 2009, The main determinants of inflation in Sri Lanka: A var based analysis, Central Bank of Sri Lanka, Staff Studies, 39(1&2).

Rogoff, K., 1985, Can international monetary policy cooperation be counter productive? Journal of International Economics, 18: 199-217.

Romer, D., 1993, Openness and inflation: Theory and evidence, Quarterly Journal of Economics, 108(4): 869-903.

Sachida, A., C.F. Galrao, and P.A. Loureiro, 2003, Does  greater openness reduce inflation? Further evidence using panel data techniques, Economics Letters, 81: 315-319.

Sanyal, A., 1996, Access to credit and the inflation process in a developing economy, Journal of Post-Keynesian Economics, 18(4): 621-631.

Terra, C., 1998, Openness and inflation: A new assessment, The Quarterly Journal of Economics 113(2): 641-648.

Triffin, R., and H. Grudel, 1962, The adjustment mechanism to differential rates of monetary expansion among the countries of the European economic community, Review of Economics and Statistics, 44: 486-491.

Zakaria, M., 2010, Openness and inflation: evidence from time series data, Doğuş Üniversitesi Dergisi,  11(2): 313-322.