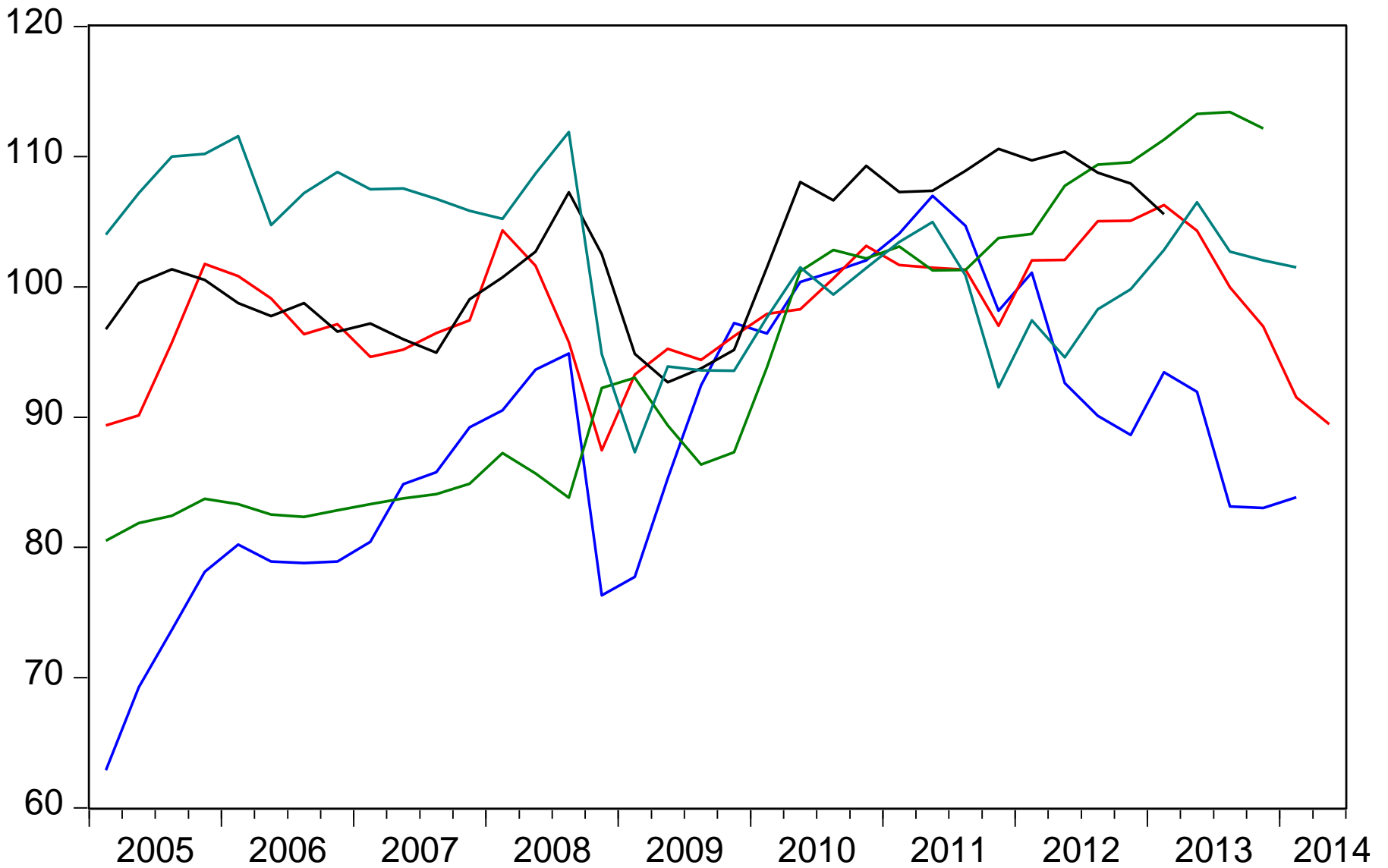


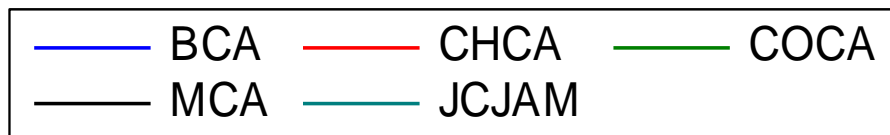
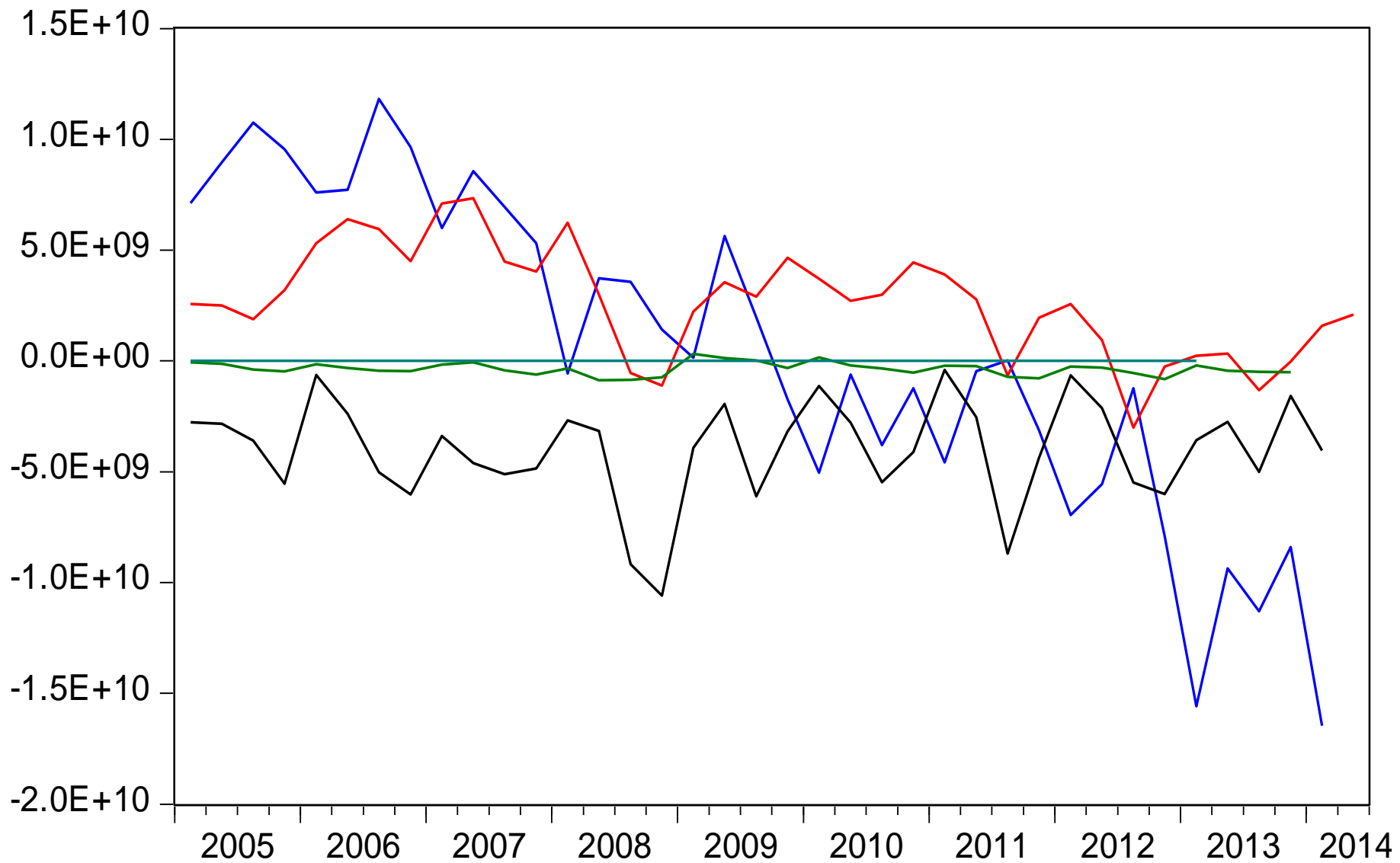
Current Account and Real Exchange Rate Dynamics in the Caribbean and Latin America

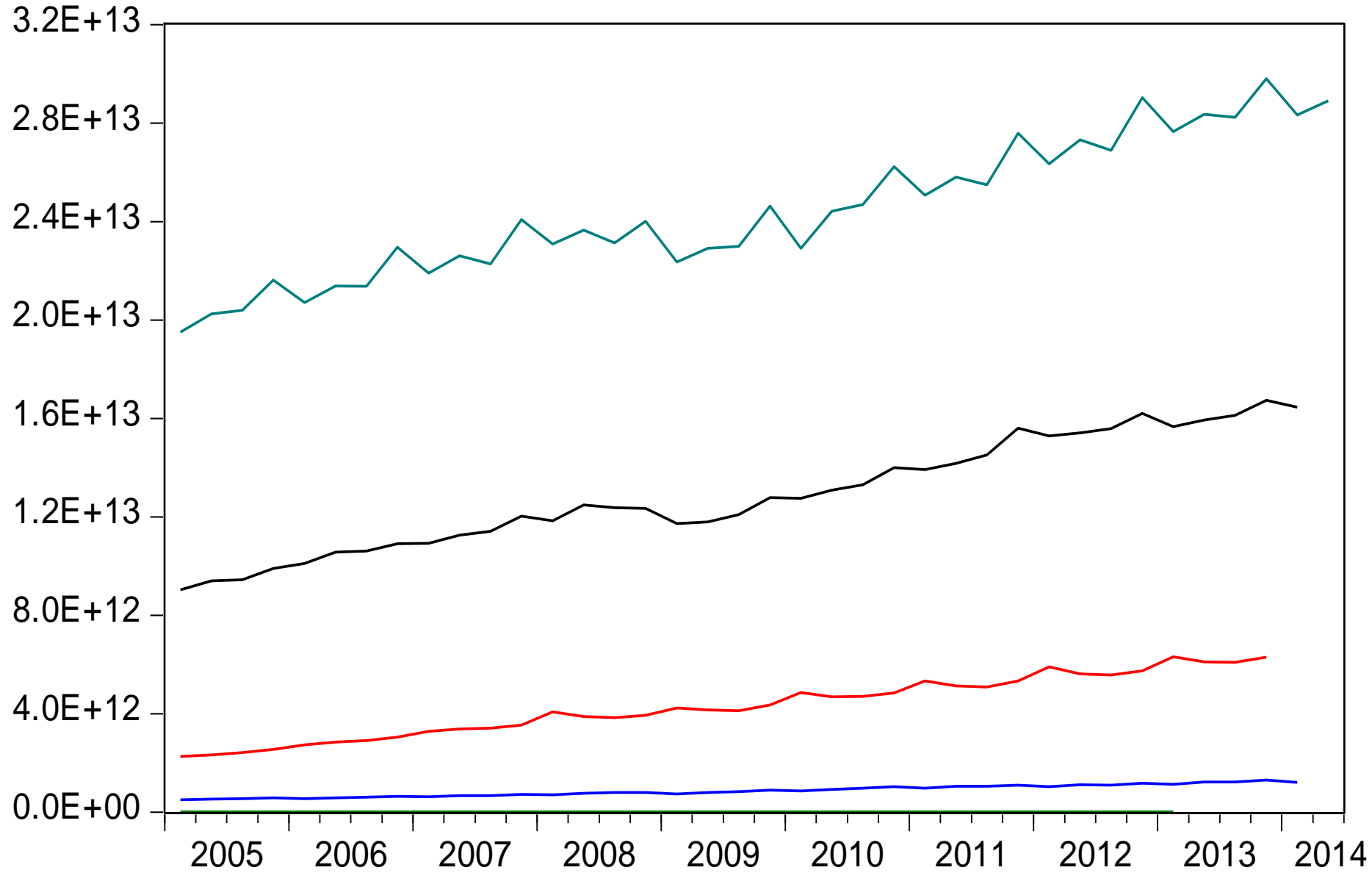
Andre Yone Haughton
Department of Economics Mona

Motivation

- Jamaica has recently entered a new **Extended Fund Facility (EFF)** arrangement with the International Monetary Fund IMF.
- Recommendations here imply that Jamaica can **improve competitiveness by facilitating a depreciation of the exchange rate relative to the bench mark US dollar.**
- The relationship between current account and the exchange rate must be investigated thoroughly.







Theoretical Framework

- Sticky price > Obstfeld and Roggoff (1995)
- **Permanent shocks to productivity** should have a **small** effect on **current account** but a real long term effect the exchange rate,
- **Temporary monetary shocks** should have a **large** effect on the **current account** in the short run, but no effect in the long run.

Our objective

- Our objective is to analyse the interrelationship between the real exchange rate and current account in Jamaica and four Latin American Countries Brazil, Chile, Costa Rica and Mexico in a structural VAR framework. The research employs the methodology proposed by Lee and Chinn (2006) who examined the same issue for G7 countries.

Franklin (2010); Jamaica; 1997-2009.

- RESULT: permanent shocks are marginally more effective than temporary shocks in explaining exchange rate and current account movement.
- Unit root tests:
 - Stationary REER stationary
 - Nonstationary CA/ GDP ratio
- Contrary to the existing literature where the REER is nonstationary and CA/GDP ratio is stationary.
- In such a case it is quite easy to misinterpret the VAR output and the shocks correspondingly.

Literature

- According to Affandi and Mochtar (2013), permanent factors are those that structurally affect current accounts in the long run such as supply side, productivity, as well as changes in preference.
- They define temporary factors as those that affect current account only in the short run such as nominal variables (price, money supply, nominal exchange rate).

Lee and Chinn (2006)

- US, Canada, UK, Japan, Germany, France, and Italy
- Temporary shocks explain CA more and Permanent shocks explain REER more in all countries except US.
- Temporary shock creates the combination of a current account surplus (deficit) and real exchange rate depreciation (appreciation).
- Permanent shocks appreciate the real exchange rate and improve the current account balance contradiction to many existing models (with the exception of the UK).

Methodology

- Consider the vector of structural shocks

$$\varepsilon_t = \begin{bmatrix} \varepsilon_t^P \\ \varepsilon_t^T \end{bmatrix} \quad (1)$$

- The VAR can be represented by the following moving average process,

$$\begin{bmatrix} \Delta q_t \\ b_t \end{bmatrix} = \sum_{L=0}^{\infty} B(L) \begin{bmatrix} \varepsilon_{t-1}^P \\ \varepsilon_{t-1}^T \end{bmatrix} \quad (2)$$

$$E(\varepsilon_t) = 0$$

$$E(\varepsilon_t \varepsilon_t') = I$$

$$E(\varepsilon_t \varepsilon_s') = 0 \text{ for } t \neq s$$

we impose the Blanchard and Quah (1989) restriction that temporary shocks do not have a long run effect on the real exchange rate such that

$$\left[\sum_{L=0}^{\infty} B(L) \right]_{(1,2)} = 0 \quad (3)$$

Empirical Framework:

- To apply our long run restriction we estimate the following VAR:

$$\begin{bmatrix} \Delta q_t \\ b_t \end{bmatrix} = C(L) \begin{bmatrix} \Delta q_{t-1} \\ b_{t-1} \end{bmatrix} + \begin{bmatrix} \mu_t^q \\ \mu_t^b \end{bmatrix} \quad (4)$$

- Where Δq_t is the first difference of the real effective exchange rate and b_t is the current account to GDP ratio and

$$\mu_t = \begin{bmatrix} \mu_t^q \\ \mu_t^b \end{bmatrix} \quad (4)$$

The moving Average representation of the model is given by

$$\begin{bmatrix} \Delta q_t \\ b_t \end{bmatrix} = \sum_{L=0}^{\infty} D(L) \mu_{t-L} \quad (5)$$

$$E(\mu_t) = 0 \quad E(\mu_t \dot{\mu}_t) = A \quad E(\mu_t \dot{\mu}_s) = 0, \quad \text{for } t \neq s$$

- Using the fact that

$$A = B(0)B(0') \quad (6)$$

Methodology

- Using the fact that

$$B(L) = D(L)B(0)^{-1} \quad (L = 1, 2, 3, \dots) \quad (7)$$

Equation 3 can be rewritten as

$$\left[\sum_{L=0}^{\infty} D(L) B(0)^{-1} \right]_{(1,2)} = 0 \quad (8)$$

Such that

$$\mu_t = B(0)\varepsilon_t \quad (9)$$

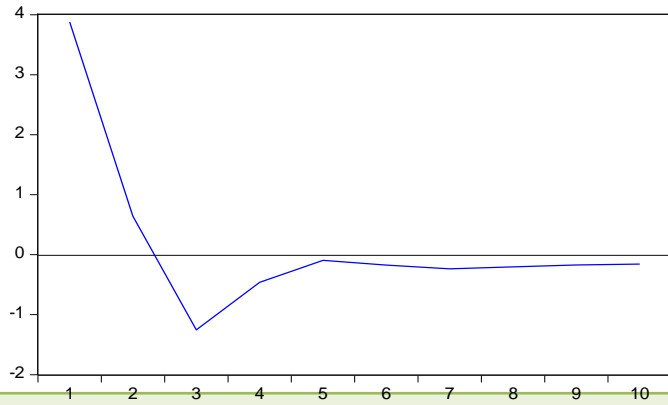
Data (IMF International Financial Statistics IFS)

- Quarterly data from 2005:Q1 to 2013:Q4
- real effective exchange rate (REER)
- Real GDP
- current account balance
- Brazil, Chile, Costa Rica, Jamaica and Mexico.
- we create a variable which expresses the current account as a percentage of GDP.

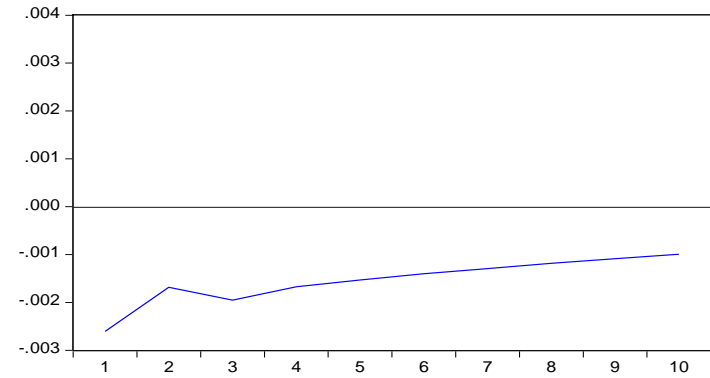
The Augmented Dickey Fuller and the Phillips Perron unit root tests

- **Stationarity** necessary to ensure that the MA representation of our model converges.
- **Could not reject the null of a unit root for the REER** in levels indicating \Rightarrow differenced stationary
- The current account to GDP ratio is stationary in levels as the **null of a unit root rejected for all countries**

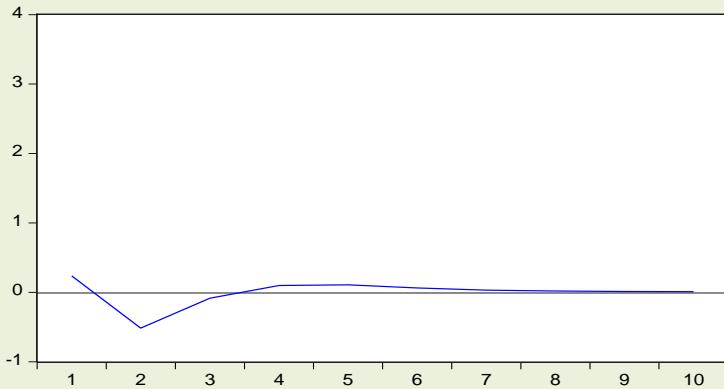
Brazil Response of DREER to Temp Shock



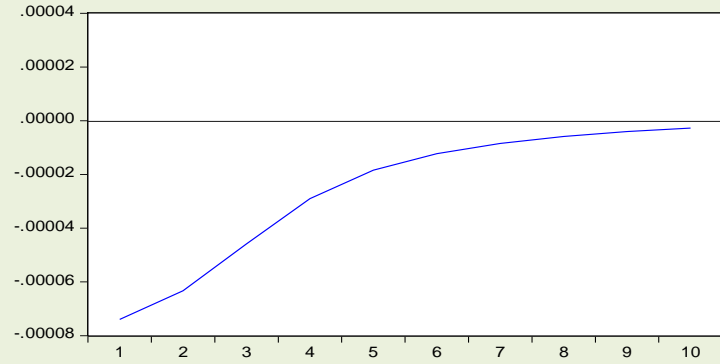
Brazil Response of CGDP to Temp Shock



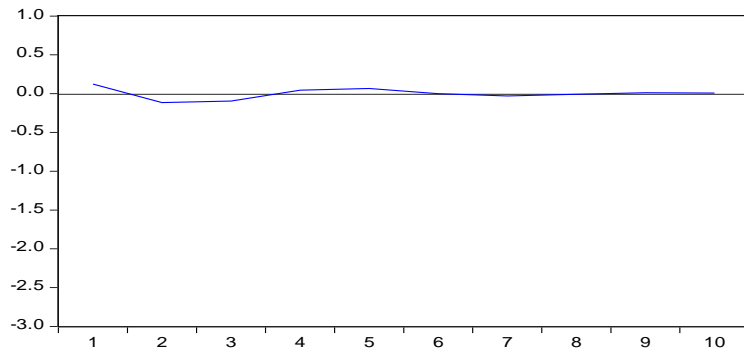
Chile Response of DREER to Temp Shock



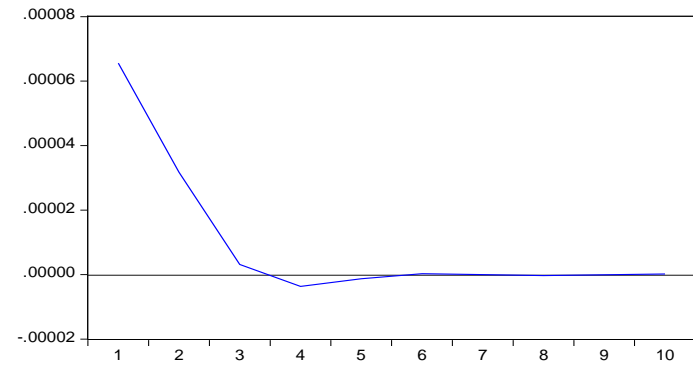
Chile Response of CGDP to Temp Shock



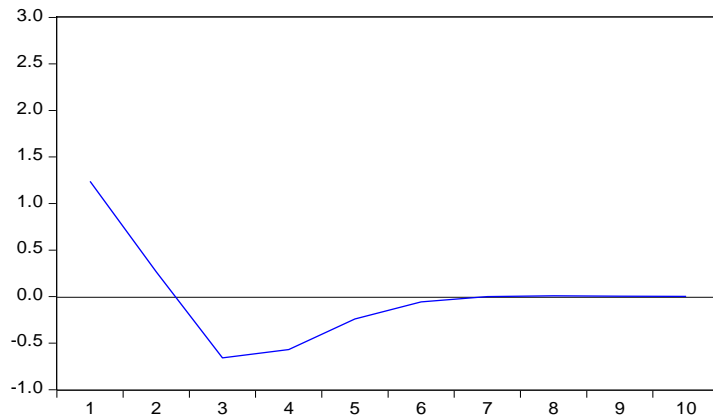
Costa Rica Response of DREER to Temp Shock



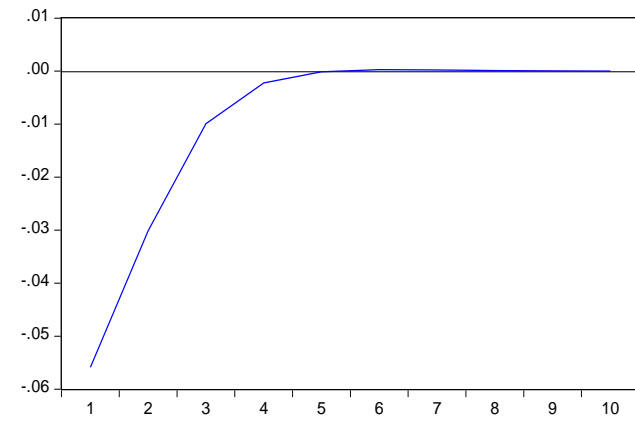
Costa Rica Response of CGDP to Temp Shock



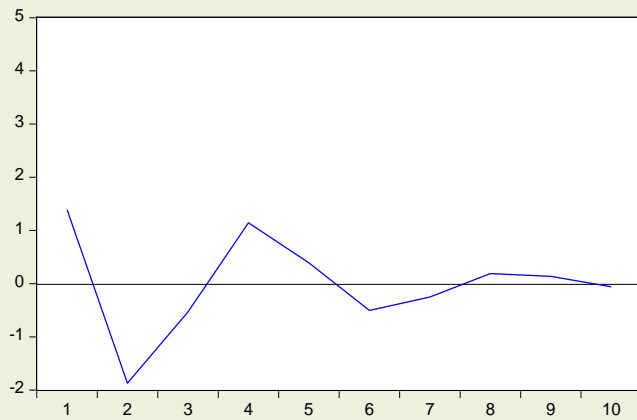
Jamaica Response of DREER to Temp Shock



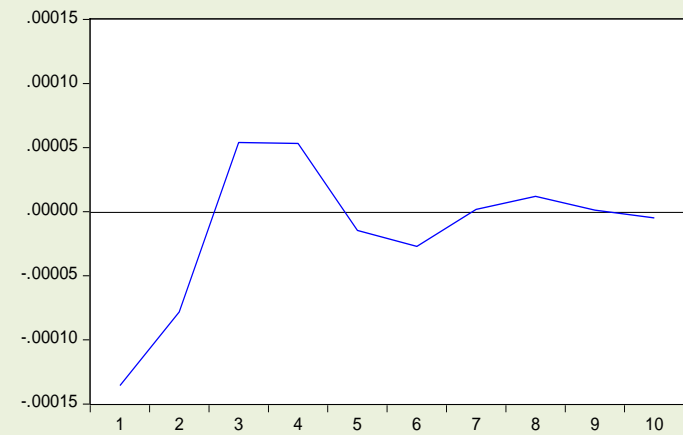
Jamaica Response of CGDP to Temp Shock



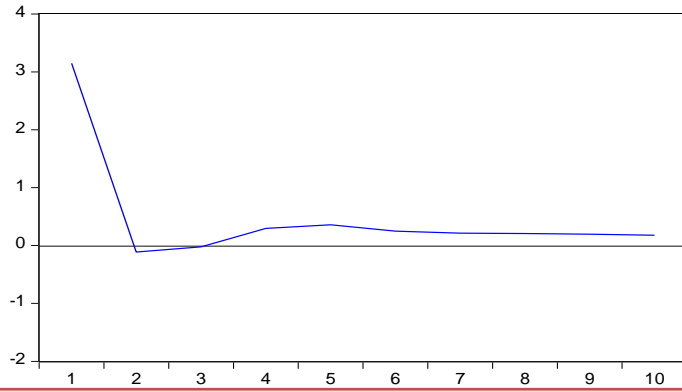
Mexico Response of DREER to Temp Shock



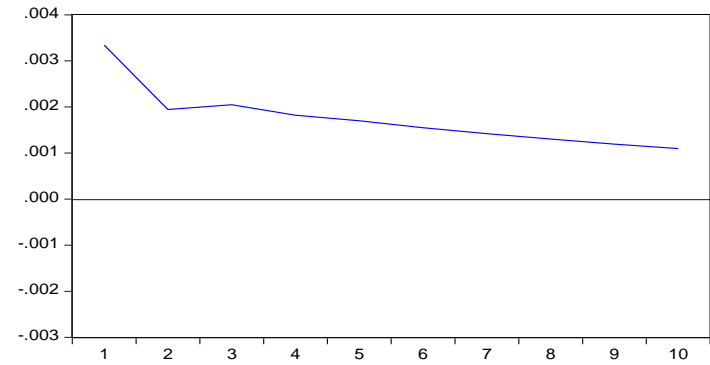
Mexico Response of CGDP to Temp Shock



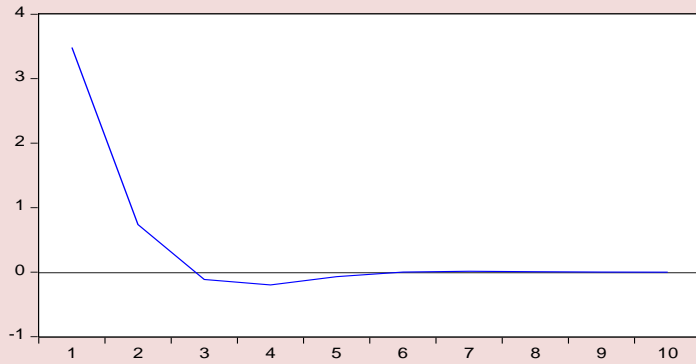
Brazil Response of DREER to Perm Shock



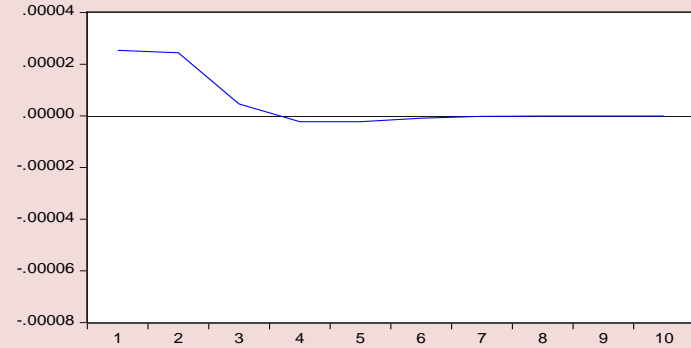
Brazil Response of CGDP to Perm Shock



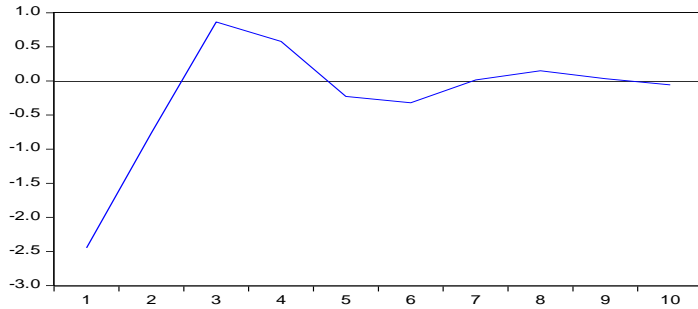
Chile Response of DREER to Perm Shock



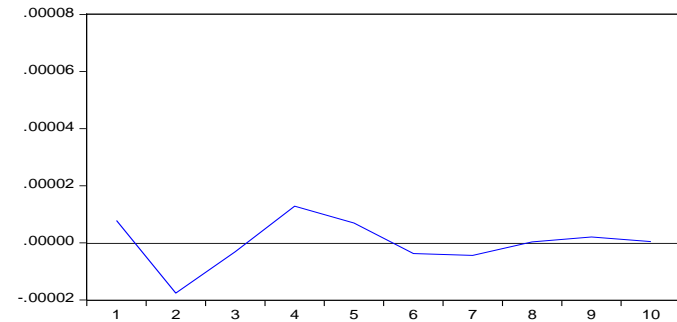
Chile Response of CGDP to Perm Shock



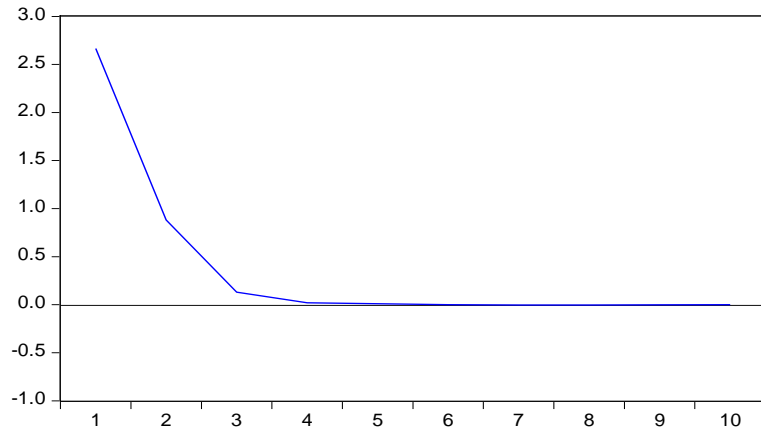
Costa Rica Response of DREER to Perm Shock



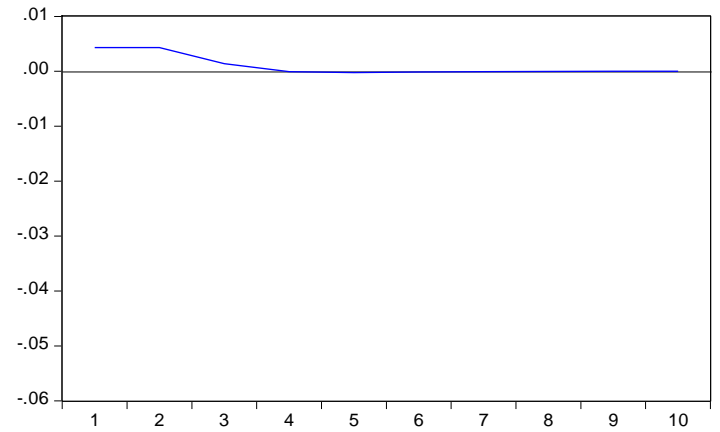
Costa Rica Response of CGDP to Perm Shock



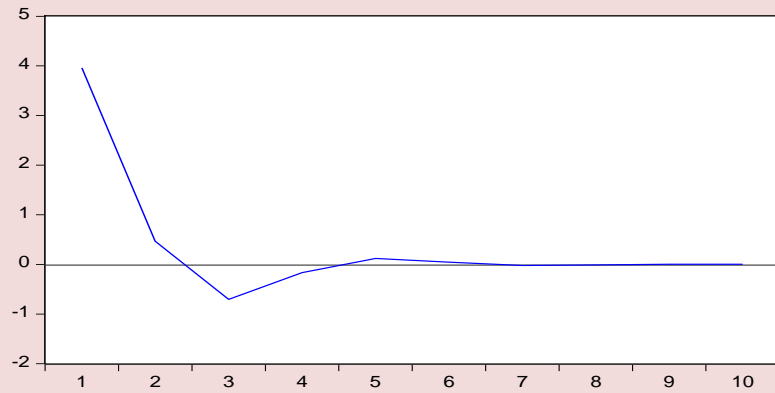
Jamaica Response of DREER to Perm Shock



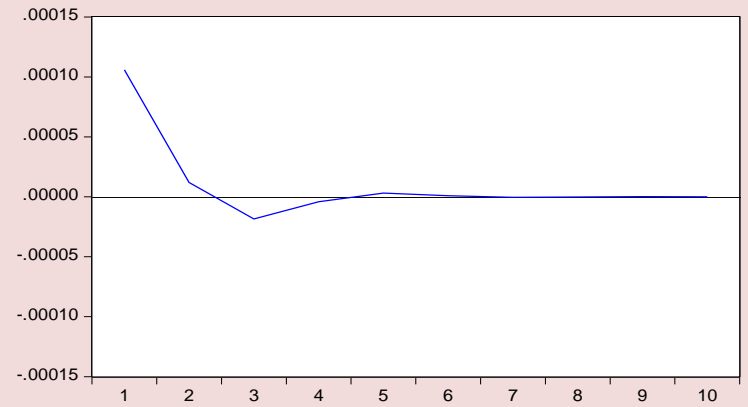
Jamaica Response of CGDP to Perm Shock



Mexico Response of DREER to Perm Shock

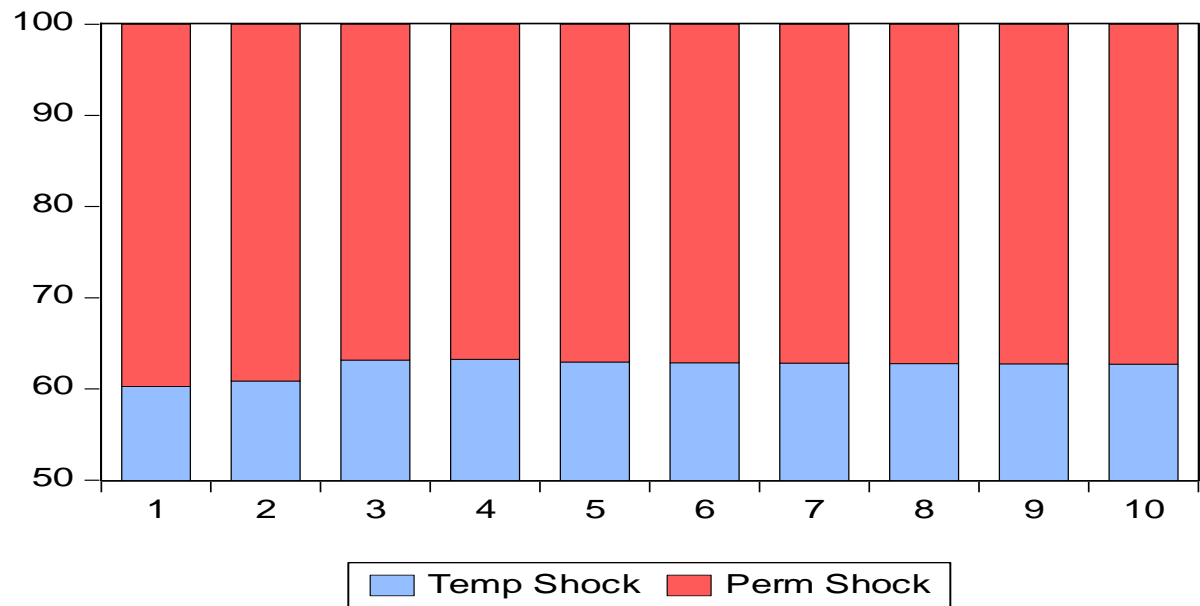


Mexico Response of CGDP to Perm Shock

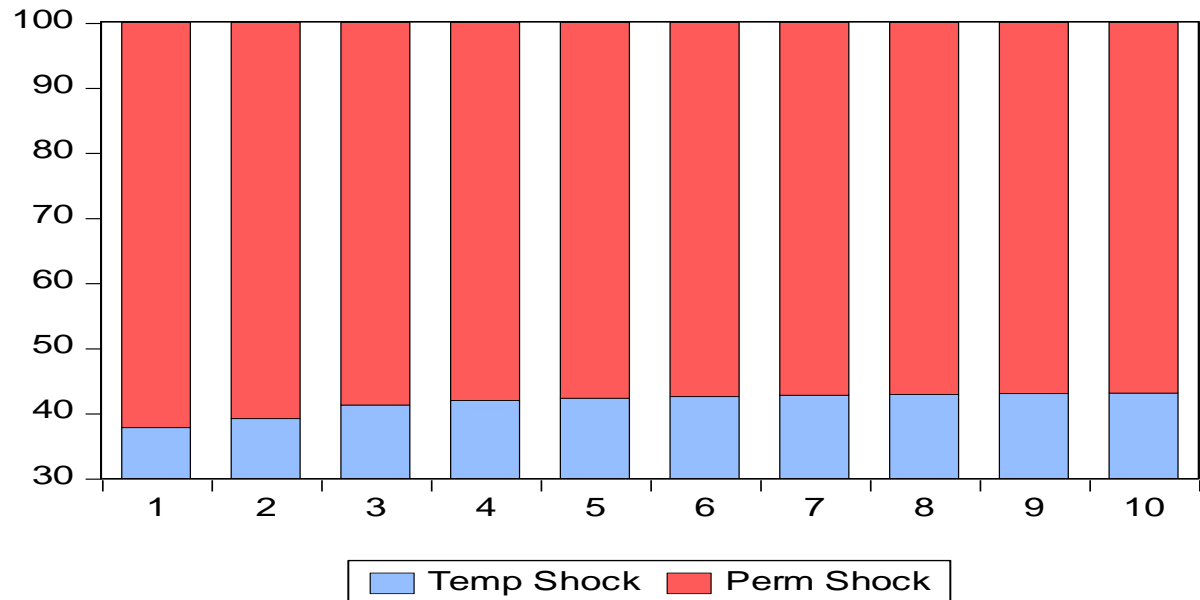


Brazil

Variance Decomposition of D(REER)

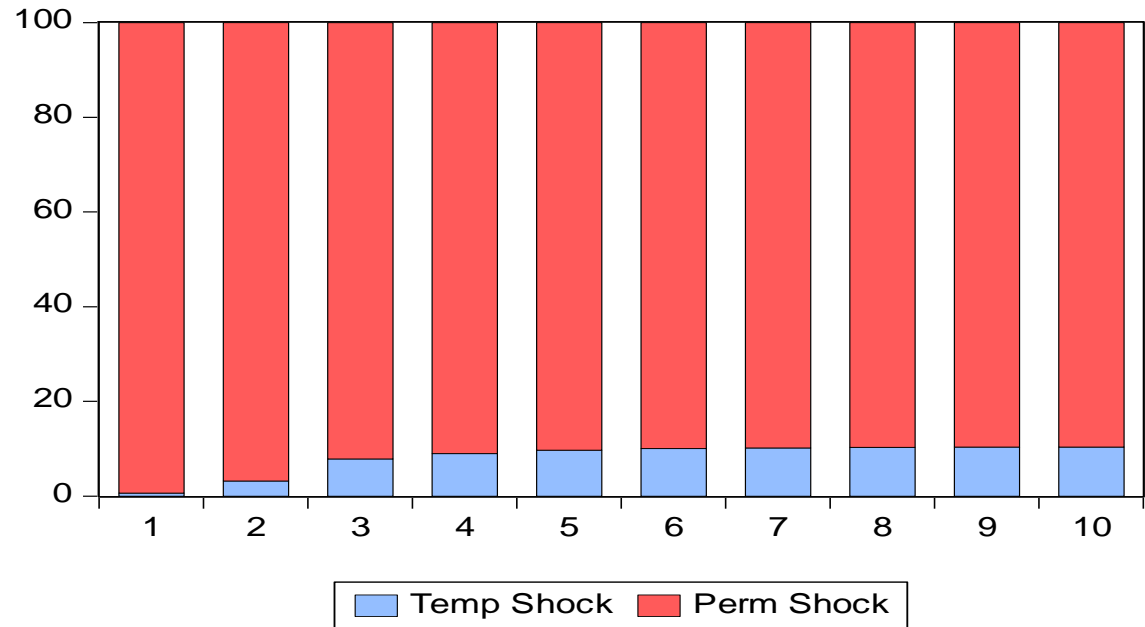


Variance Decomposition of CGDP

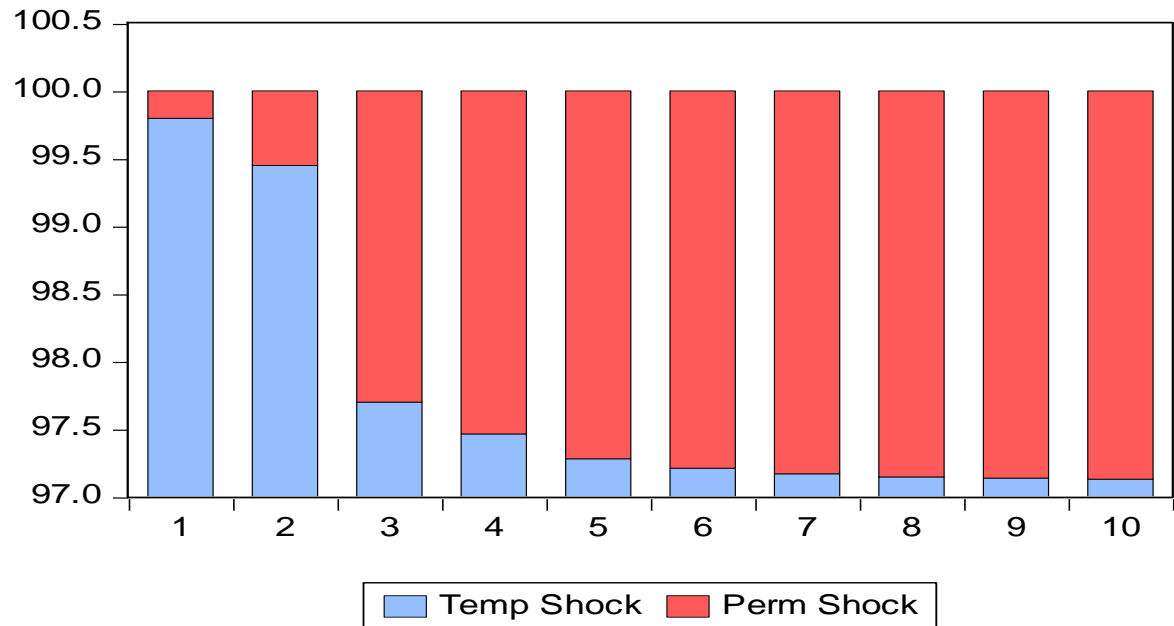


Chile

Variance Decomposition of D(REER)

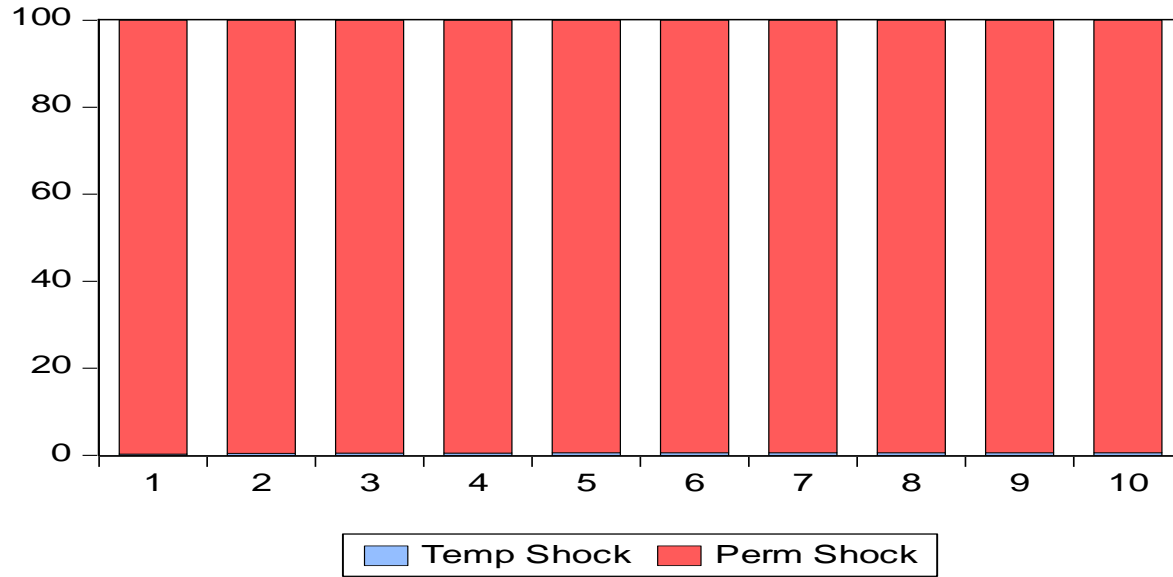


Variance Decomposition of D(CGDP)

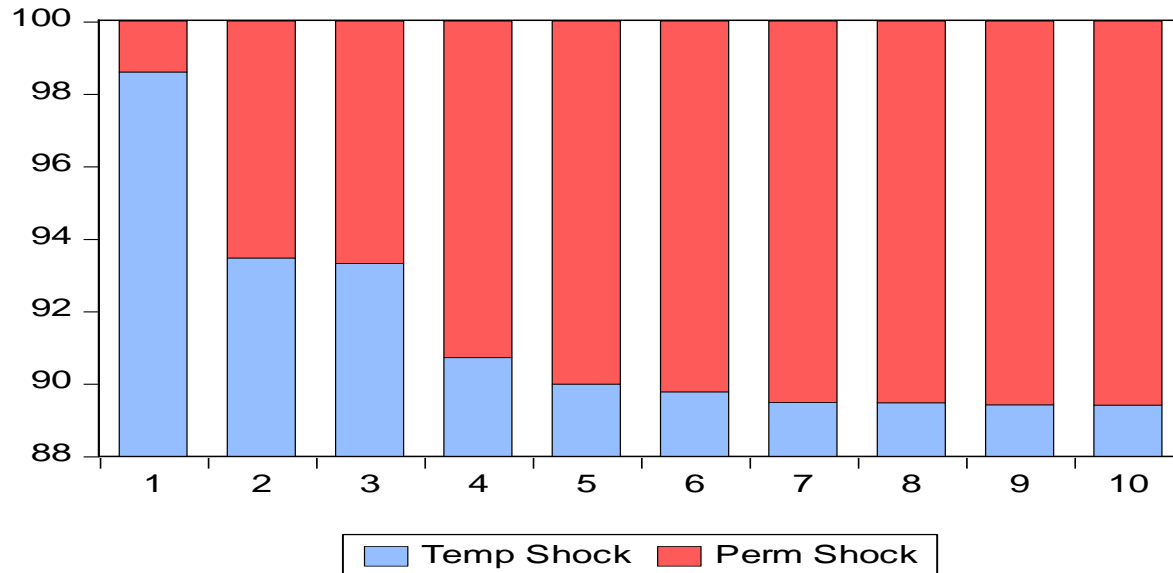


Costa Rica

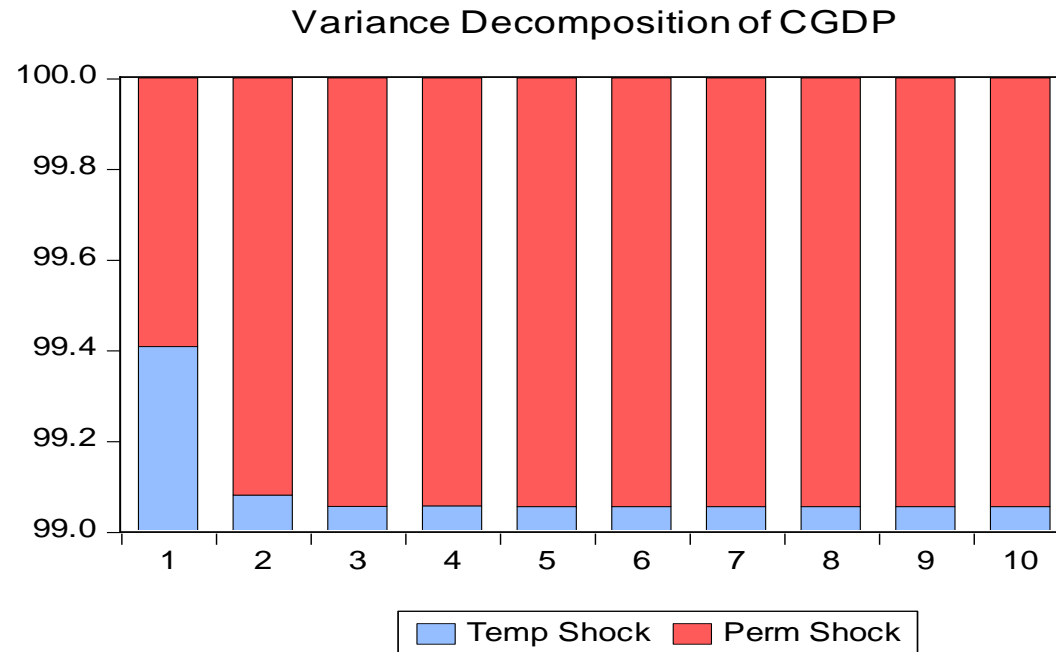
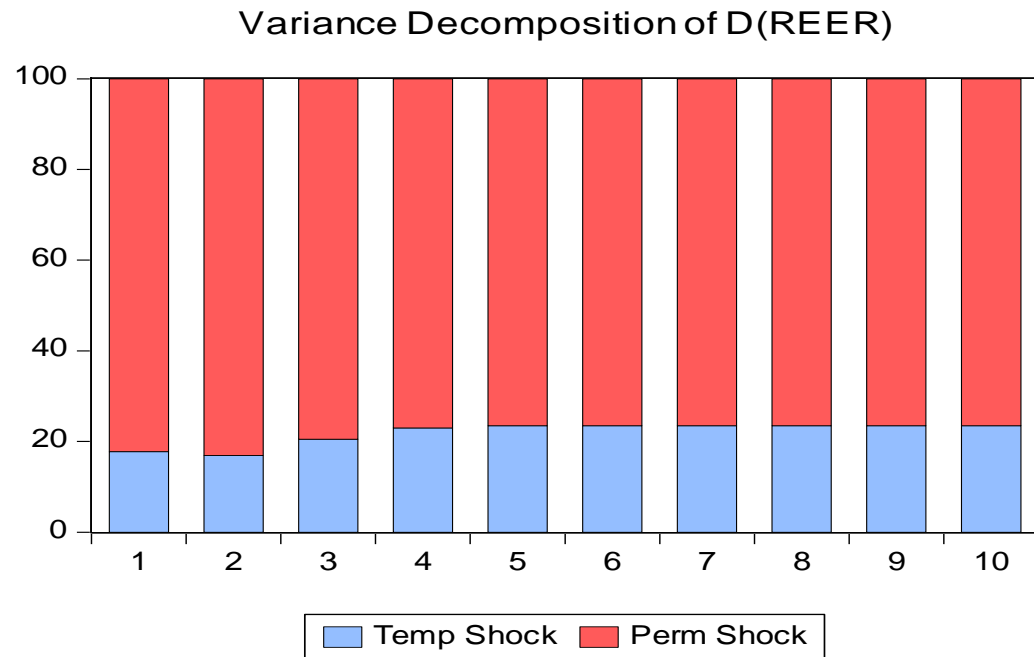
Variance Decomposition of D(REER)



Variance Decomposition of CGDP

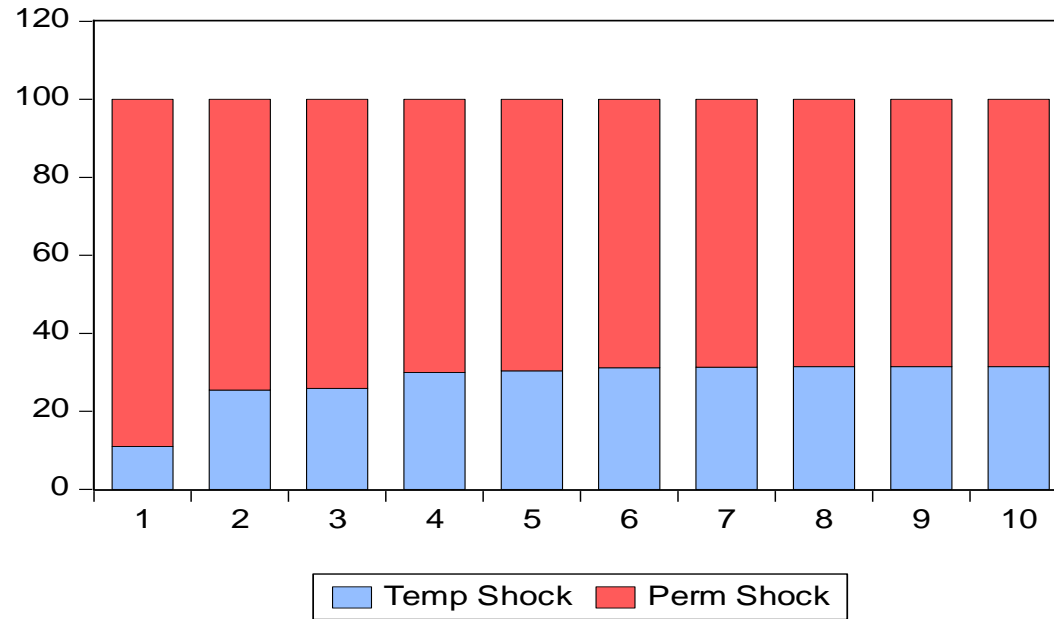


Jamaica

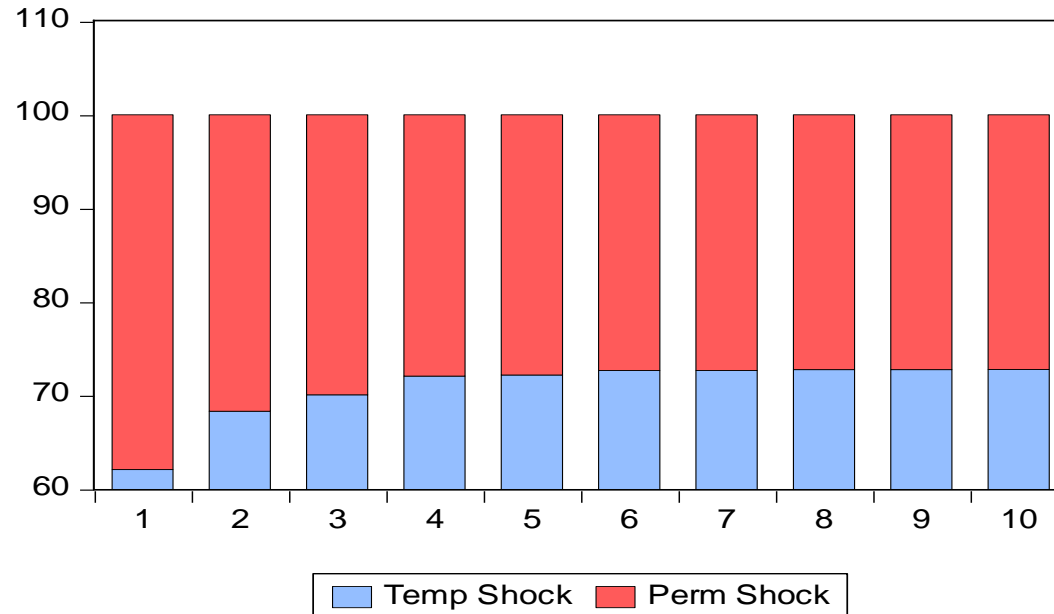


Mexico

Variance Decomposition of D(REER)



Variance Decomposition of CGDP



Concluding Remarks

- Temporary shocks explain CA more and Permanent shocks explain REER more in all countries except Brazil, consistent with the existing literature
- Permanent productivity shocks appreciate the real exchange rate as well as improve the current account situation
- Sustained improvement in the CA & REER in these countries can only be achieved by positive permanent productivity shock