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Comparing the Effectiveness of Expansionary Monetary vs. Fiscal Policies in Boosting GDP in Cambodia

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Abstract

Four indicators were incorporated into a system of equations using a structural vector autoregressive (SVAR) model, specifically gross domestic product (GDP), consumer price index (CPI), money supply (M2), and government expenditure (G), to assess the effectiveness of macroeconomic policies, including both monetary and fiscal policies, in Cambodia. The empirical results indicated that the growth of the money supply produced a positive impact on economic growth, peaking in the second quarter before gradually converging to equilibrium by the fourth quarter. Conversely, government expenditure and the inflation rate initially exerted a negative impact on economic growth during the first and second quarters, followed by a positive effect starting in the second quarter, ultimately converging to equilibrium by the fourth quarter.

Keywords: *Monetary Policy, Fiscal Policy, SVAR Model.*

Introduction

For more than a decade, Cambodia has achieved macroeconomic stability which has an inflation rate on average the lowest among the developing countries. This success could not be achieved without sound and effective macroeconomic policies, fiscal and monetary policies. Recently, the Cambodia Securities Exchange (CSX) has just been launched on 18 April 2012 which revealed that the Cambodia's market structure has extended to another step.

To continue establish sustainable economic growth and stability and to be efficiently managing financial market well, macroeconomic policies need to be improved. Monetary Policy Committee (MPC) as well as Financial Policy Committee (FPC) needs to consider on using new econometrics technique that could generate effective macroeconomic forecasting which can be used for policy implication.

The study tries to determine the answer to the following question: Which policy, monetary or fiscal policy; that contributes a lot to stimulate the economic growth in Cambodia. What policy action to be considered by the Royal Government of Cambodia in order to achieve long-term growth and stability?

The objective of this study is to evaluate the effectiveness of macroeconomic policies both monetary and fiscal policies on economic growth in Cambodia. Moreover, the study also attempts to investigate the interrelationship of output, price level, money supply and government expenditure. Finally, this study also tries to determine optimal policy for long term growth and stability.

Literature Review

There have been a growing number of studies on the effects of fiscal policy in recent years using structural VAR model. Based on Blanchard and Perotti (2002) work, a number of studies were taken to examine the effects of fiscal policy on the economy using more or less a uniform approach of a structural VAR.

Heppke-Falk, et al. (2006), for example using a structural VAR model with 5 variables; tax, government spending, output, inflation, and interest rate, to study the effects of fiscal policy in Germany from 1974:1-2004:1 have found that a government expenditure shock triggers an output increase, boosts private consumption but not private investment. On the other hand, they found that government investment has

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stronger effects on macroeconomic activity than government personnel expenditure, while indirect tax shocks seem to have weaker effects than direct tax shocks. Fernández, et al. (2006) in a similar 5-variable SVAR study on Spain, using quarterly data from 1980Q1 to 2004Q4 have come to a conclusion that increases in government expenditure have a positive impact on economic growth in the short term, but the effect turns negative in the longer term. Both government expenditure and net tax increases generate public deficits in the medium term but they have opposite impact on the price level and output. The government expenditure shocks lead to increase in price level while net-tax increases trigger a negative short-term price response. Finally, these authors conclude that the responses of GDP or prices are found to differ significantly depending on the spending or tax component considered. In another study using similar approach to the case of Pakistan, Shaheen and Turner (2008) find similar conclusions for fiscal policy impact for Pakistan. These authors nevertheless show some weakness of the SVAR approach, arguing that the results obtained from a SVAR model may lose their accuracy over longer horizons and should be treated with caution. The structural VAR approach was also used to analyze fiscal policy effects in some middle-income and developing countries. Restrepo and Rincón (2006) for example apply this model to Chile and Columbia; Štiková (2006) uses this model for Czech Republic. The results obtained from these studies also sensible and these authors believe that the SVAR approach can be considered as a good tool for assessing fiscal policy effects, Vu (2010).

Deravi et al. (1995) conducted a study about the "Exchange Rates and the Inflation Rate" in the US of which was extended from the studies which were conducted by Whitt, Koch, and Rosensweig in 1986 and Kanh in 1987 but those studies were only about the relationship between exchange rate and price level in the US. Whereas the purpose of Deravi et al. (1995) was to consider the impact of exchange rate movement on the inflation rate by using reduced-form VAR model of three variables which were money supply, exchange rate, and consumer price index (CPI). However, all variables were expressed in the forms of natural logarithms. As a contribution to the previous studies, money supply was added to the model in order to check the affect of dollar depreciation on price level. The result of this study indicated that money supply growth Granger-caused not only exchange rate, but also inflation. Moreover, the variance decomposition came up with two difference assumptions. One was that money supply was exogenous; so that money supply was shocked first following by exchange rate and price level and was set as Ordering1.

The alternative assumption was that money supply was endogenous; so that price level was shocked first following by exchange rate and money supply and was set as Ordering2. The variance decomposition of Ordering1 revealed that the increase in money supply growth and the exchange rate depreciation could affect inflation rate over a period of 48 months, but the explanations were not more than 9 percent and 11 percent of variation of money supply and exchange rate to inflation, respectively. Whereas the forecast error variance of the price level explained by its own lagged decreased over time, but remained in around 80 percent after 4 years. Moreover, the result of Ordering2 suggested that money supply explained 28.1 percent of the inflation's forecast error variance and exchange rate explained 41.1 percent after the period of 4 years. In contrast from Ordering1, the forecast error variance of inflation explained by itself declined to around 31 percent. In addition to the variance decomposition, the impulse response was performed. The result showed in stronger price responded to an innovation in the exchange rate.

Before the study which was performed by Deravi et al. in 1995, Kahn (1987) conducted a research about the "Dollar Depreciation and Inflation" in the US and VAR model had also been used. But before running the dynamic models between exchange rate and price level, Kahn used some control variables that could influence on the exchange rate and the price level, those variables including unemployment, real gross national product (GNP) growth, money growth, change in energy prices, and change in the value of the dollar. Each variable was explained by its own lag and by lag of the other variables in the VAR models. The residual of these regressions were used as the variables in the VAR models that link to the relationship between exchange rate and price level. Kahn (1987) found that, from 1960:Q1 to 1987:Q1, the price level increased by 14 percent while the value of dollar decreased by 40%. Since the interaction period between price level and exchange rate was very long, the inflation rate went up slightly. Actually, Whitt et al. (1986) conducted a study before Kahn (1987) about exchange rate and inflation in the US and they found that

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when price level increased by 1.6 percent after the period of one year, the dollar would depreciate about 10 percent.

Additionally, Hafer (1989) also found similar result to both Whitt et al. (1986) and Kahn (1987) related to the linkage between dollar depreciation and inflation in the US. Besides that, Manning and Andrianacos (1993) studied about dollar movements and inflation: a co-integration analysis and the objective of the study was to investigate the relationship between Japanese exchange rates and US domestic price level over time by using VAR model with natural logarithms of five variables those included yen/dollar exchange rate (JER), CPI, money supply growth (M2), personal income, and interest rate. Consequently, they found no relation between the yen/dollar exchange rate and price level in the US.

With the same objective, Deme and Fayissa (1995) conducted a study in the case of Egypt, Morocco, and Tunisia. The result of the study showed that the exchange rate Granger-caused price level in Morocco but not in Egypt and Tunisia while Kyereme (1991) found similar result in the case of Ghana that exchange rate Granger-caused inflation. In contrast to the result of the studies in the case of Morocco and Ghana, a study which was conducted by Rittenberge (1993) revealed that price level Granger-caused exchange rate, but no feedback in the case of Turkey.

Moreover, Kim (1998) conducted a research about US inflation and the dollar exchange rate: a vector error correction model. At the time, the dynamic model which was VECM was used to perform the empirical analysis of the linkage among four variables consisted of producer price index, TWEX, M2, personal income, and interest rate. All variables were expressed in the terms of natural logarithms. The result revealed that exchange rate movement Granger-caused price level.

Following the study about the interaction of price level, exchange rate, and money supply in the US, Turkey as well as in some African countries, some researchers such as Tan and Baharumshah (1999) performed a study with similar purpose to the case of US and some other countries, but in the case of Malaysia. Even though, the finding revealed that all variables in the models had a long-run relationship.

Furthermore, Mohammed and Lee (2000) also conducted a study about "Money, Exchange rates, and Inflation: Evidence from Malaysia." Actually, the methodology of the study was extracted from a study which was conducted by Kim in 1998 by employing the VECM which was a standard VAR model. To construct the model, five variables had been employed of which were CPI, exchange rate, three-month Treasury bill interest rates, industry production index, and broad money. The finding implied that there existed a long-run relationship among Malaysian Ringgit-US dollar exchange rates, inflation, domestic output, money supply, and interest rates in Malaysia. Moreover, exchange rate Granger caused both domestic price level and inflation.

Nguyen and Kaliappa (2006) performed an article on "Can Devaluation be Effective in Improving the Balance of Payments in Vietnam?" The purpose of the study was mainly to examine whether exchange rate devaluation help to increase export and improve balance of payment in Vietnam or not. The finding suggested that the balance of payment could be improved through exchange rate devaluation that might lead to increase in export and inflow of foreign currency which would also help in improving the current account. In addition, the result further explained that money supply growth Granger-caused both exchange rate and inflation in Vietnam and the forecast error variance decomposition of inflation indicated that the shocks of money supply growth contribute a substantial change from around 23 percent to 28 percent of inflation variation, while depreciation of exchange rate contributed around 4 percent of the forecast error variance of inflation.

Ginting and Bird (2009) conducts a study about "Explaining Inflation in Cambodia." The objective of the study is to investigate the factors that can be used to explain inflation in Cambodia. The VECM is performed by running with the variables such as the inflation rate, the change of weighted exchange rates of Thai Baht and Vietnam Dong per US dollar, the change of M1 (narrow money), and the dummy variable which represents the excess of output gap that emerged in 2007. Due to the limited available time series data for Cambodia, the period of the study is from December 2002 to July 2008. In addition, the inflation

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rate of Thailand and Vietnam are also included in the VECM in order to explain the inflation rate of Cambodia which separated into headline, food, and core inflation. In the long-run relationship, the result of the study suggests that the trading partner's inflation is the most important variable in explaining variation of inflation in Cambodia, while the M1 cannot be explained in both headline and food inflations but it can be used to explained core inflation.

However, the interaction of M1 with the dummy variable is important in explaining headline and core inflations. The interaction of M1 with dummy has a positive influenced on headline inflation (coefficient of 0.16), this might be due to its transmission through core inflation while weighted exchange rate has no impact on headline or core inflation. Surprisingly, the result of the short-term relationship revealed that there is some inflation persistence. The lagged dependent variable is statistically significant in both equations for the headline and the food inflation.

Moreover, the lagged of trading partners' inflation influences both headline and food inflation, but not core inflation in the short-run. Furthermore, the lagged of M1 cannot be used to explain headline and food inflation but it is still the main variable explaining the short-term dynamic of the core inflation. Whereas, the coefficients of the error-correction term for the headline and food inflation are 0.13 and 0.18, respectively, suggesting a relative fast adjustment period. This can be explained that the adjustment for food inflation when it deviates from that of the trading partners happens much faster than the headline inflation.

Research Methodology

This study is attempted to investigate the relationship of Goss Domestic Product (GDP), Consumer Price Index (CPI), Money Supply (M2) and Government Expenditure (G) by using Structural Vector Autoregressive (SVAR).

$$AX_t = c + \Gamma_1 X_{t-1} + \Gamma_2 X_{t-2} + \cdots + \Gamma_p X_{t-p} + u_t$$

where

$$X_t \equiv [gdp_t, cpi_t, m2_t, g_t]'$$

$$A = \begin{bmatrix} 1 & -a_{12} & -a_{13} & -a_{14} \\ -a_{21} & 1 & -a_{23} & -a_{24} \\ -a_{31} & -a_{32} & 1 & -a_{34} \\ -a_{41} & -a_{41} & -a_{43} & 1 \end{bmatrix}$$

$$c = (c_1, c_2, c_3, c_4)'$$

and u_t are structural disturbances. Γ_s is a (4×4) matrix whose row *I*, column *j* element is given by $\beta_{ij}^{(s)}$ for $s = 1,2, \ldots, p$. However, all variables are expressed in logarithm. Generally, the main purpose of the VAR model, reduced-form VAR or SVAR, is to determine impulse response function (IRF) as well as forecast error variance decomposition (FEVD). But to produce these result, the following step need to be followed. Test for the unit root by using Augmented Dickey-Fuller (ADF) test to all data series. If the unit root does exist, transform the data to be the first difference and perform unit root again. Check for optimal lag-length by using Information Criteria (IC) such as Akaike Information Criteria (AIC) or Schward Information Criteria (SIC). The one that produced the lowest IC, will be chosen to be the optimal lag-length. Then, the VAR model can be run with the order of *gdp, cpi, m2 and g*. The SVAR model can be estimated by written as:

$$Ae_t = Bu_t$$

where e_t and u_t are vectors of length *k*. e_t is the observed (or reduced form) residuals, while u_t is the unobserved structural innovations. A and B are $k \times k$ matrices to be estimated.

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$$\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & a_{23} & 0 \\ a_{31} & a_{32} & 1 & 0 \\ a_{41} & a_{41} & 0 & 1 \end{bmatrix} \begin{bmatrix} e_{gdp,t} \\ e_{cpi,t} \\ e_{m2,t} \\ e_{g,t} \end{bmatrix} = \begin{bmatrix} a_{11} & 0 & 0 & 0 \\ 0 & a_{22} & 0 & 0 \\ 0 & 0 & a_{33} & 0 \\ 0 & 0 & 0 & a_{44} \end{bmatrix} \begin{bmatrix} u_{gdp,t} \\ u_{cpi,t} \\ u_{m2,t} \\ u_{g,t} \end{bmatrix}$$

$$e_{gdp,t} = b_{11}u_{gdp,t}$$

$$e_{cpi,t} = b_{22}u_{cpi,t} - a_{23}e_{m2,t}$$

$$e_{m2,t} = b_{33}u_{m2,t} - a_{31}e_{gdp,t} - a_{32}e_{cpi,t}$$

$$e_{g,t} = b_{44}u_{g,t} - a_{41}e_{gdp,t} - a_{42}e_{cpi,t}$$

After impose the restriction, the last step would be the generation of IRF and FEVD. In addition, some diagnostic tests are also performed such as the stability test and normality test.

This study is applied quarterly data from 2010:Q1 to 2024:Q2. All of the data are collected from National Bank of Cambodia (NBC), Ministry of Economic and Finance (MEF), Ministry of Planning (MoP), and International Financial Statistic (IFS) of International Monetary Fund (IMF). All variables are seasonal adjusted by using X12 procedure.

Empirical Results

All data series are integrated at level one or *I(1)*, as reveal by the Augmented Dickey-Fuller (ADF) and Phillip-Perron tests. Since all the series are expressed in logarithm, the first different refers to the growth rate.

Table 1. Unit Root Test

Variable	Level		First Difference	
	ADF	PP	ADF	PP
GDP	0.5601	0.6811	0.0000	0.0000
CPI	0.952	0.9860	0.0008	0.0021
M2	0.9717	0.9688	0.0000	0.0000
G	0.7625	0.6892	0.0000	0.0001

Since all the series of the data are cointegrated at level one, the cointegration test can be performed. The result of the test reveals that there is no cointegration. Thus, the reduced form VAR model can be run. But before running VAR model, the order selection criteria need to be performed.

Table 2. Conitegration Test

Included observations: 56 after adjustments				
Trend assumption: Linear deterministic trend				
Series: LOGGDP LOGM2 LOGCPI LOGEXPD				
Lags interval (in first differences): 1 to 1				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**

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None	0.290121	36.73655	47.85613	0.3601
At most 1	0.151503	17.54756	29.79707	0.5995
At most 2	0.098974	8.347392	15.49471	0.4290
At most 3	0.043849	2.511000	3.841466	0.1131
Trace test indicates no cointegration at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

With the lowest value of Akaike information criterion (AIC), the reduced form VAR is run with lag one.

Table 3. VAR Lag Order Selection Criteria

Endogenous variables: DLOGGDP DLOGCPI DLOGM2 DLOGG						
Exogenous variables: C						
Included observations: 52						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	344.4519	NA	2.42e-11	-13.09430	-12.94421*	-13.03676*
1	365.1004	37.32607*	2.03e-11*	-13.27309*	-12.52261	-12.98538
2	378.4893	22.14325	2.27e-11	-13.17267	-11.82181	-12.65478
3	386.3098	11.73063	3.20e-11	-12.85807	-10.90682	-12.11001
4	401.8297	20.89218	3.45e-11	-12.83960	-10.28798	-11.86137
5	411.5345	11.57118	4.83e-11	-12.59748	-9.445473	-11.38908
* indicates lag order selected by the criterion						
LR: sequential modified LR test statistic (each test at 5% level)						
FPE: Final prediction error						
AIC: Akaike information criterion						
SC: Schwarz information criterion						
HQ: Hannan-Quinn information criterion						

However, the estimated result of the VAR model cannot be directly make interpretation. The main purpose of the VAR model is to create IRF and FEVD which will be in the following steps.

Table 4. Vector Autoregression Estimates

Included observations: 56 after adjustments				
Standard errors in ( ) & t-statistics in [ ]				
	DLOGGDP	DLOGCPI	DLOGM2	DLOGG
DLOGGDP(-1)	0.276212	0.099590	-0.066754	-2.817937
	(0.14752)	(0.13846)	(0.30493)	(1.61143)
	[1.87232]	[0.71926]	[-0.21892]	[-1.74872]
DLOGCPI(-1)	0.039184	0.382876	-0.111790	2.087444
	(0.14751)	(0.13845)	(0.30491)	(1.61130)
	[0.26563]	[2.76544]	[-0.36664]	[1.29551]
DLOGM2(-1)	0.034995	0.127146	0.020309	0.124082
	(0.06983)	(0.06554)	(0.14433)	(0.76274)
	[0.50116]	[1.94003]	[0.14071]	[0.16268]
DLOGG(-1)	-0.001532	-0.003557	0.011116	-0.403910
	(0.01131)	(0.01062)	(0.02338)	(0.12357)
	[-0.13545]	[-0.33498]	[0.47541]	[-3.26869]
C	0.016816	-0.002827	0.057095	0.089305

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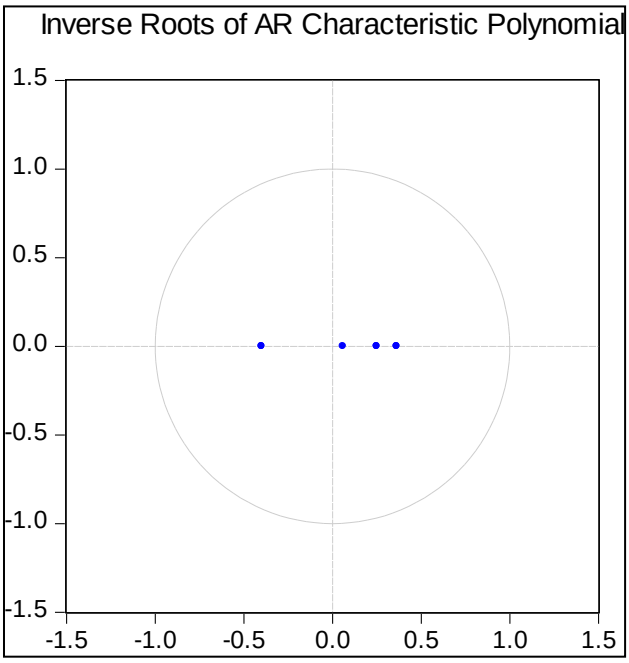
	(0.00559)	(0.00525)	(0.01156)	(0.06108)
	[3.00736]	[-0.53871]	[4.93981]	[1.46211]
R-squared	0.114269	0.295364	0.011744	0.228954
Adj. R-squared	0.044799	0.240098	-0.065766	0.168480
Sum sq. resids	0.023983	0.021127	0.102467	2.861570
S.E. equation	0.021685	0.020353	0.044824	0.236874
F-statistic	1.644882	5.344436	0.151516	3.785984
Log likelihood	137.7005	141.2508	97.03926	3.810920
Akaike AIC	-4.739303	-4.866098	-3.287116	0.042467
Schwarz SC	-4.558468	-4.685263	-3.106281	0.223302
Mean dependent	0.027011	0.011704	0.055283	0.030809
S.D. dependent	0.022188	0.023348	0.043419	0.259765
Determinant resid covariance (dof adj.)		1.44E-11		
Determinant resid covariance		9.89E-12		
Log likelihood		391.6535		
Akaike information criterion		-13.27334		
Schwarz criterion		-12.55000		

To make sure that the system is stationary, stability test has to be applied. As can be seen from the following picture, all roots lie inside the unit circle which is clearly indicate that the system will converge to equilibrium.

Figure 1. VAR Model Stability Test



The purpose of the study is to investigate the structural shocks in the system of four variables which have stated above. The estimated SVAR model is as follow. Four parameters—C(3), C(6), C(7) and C(8)—are not statistically significance, but other estimated parameters are statistically 5% significance level. However, the imposed restriction of SVAR is valid with according to Likelihood Ratio test for over-identification, since the null hypothesis is failed to reject with 5% significant level.

Table 5. Structural VAR Estimates

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Included observations: 56 after adjustments				
Estimation method: method of scoring (analytic derivatives)				
Convergence achieved after 12 iterations				
Structural VAR is over-identified (1 degrees of freedom)				
Model: Ae = Bu where E[uu']=I				
Restriction Type: short-run text form				
@e1=c(1)*@u1				
@e2=c(2)*@u2-c(5)*@e3				
@e3=c(3)*@u3-c(6)*@e1-c(8)*@e2				
@e4=c(4)*@u4-c(7)*@e1-c(9)*@e2				
where				
@e1 represents DLOGGDP residuals				
@e2 represents DLOGCPI residuals				
@e3 represents DLOGM2 residuals				
@e4 represents DLOGG residuals				
	Coefficient	Std. Error	z-Statistic	Prob.
C(5)	-0.765130	0.369121	-2.072840	0.0382
C(6)	-3.086205	2.166127	-1.424757	0.1542
C(7)	-2.230571	1.615235	-1.380958	0.1673
C(8)	5.591074	4.576958	1.221570	0.2219
C(9)	2.839670	1.720953	1.650056	0.0989
C(1)	0.021685	0.002049	10.58301	0.0000
C(2)	0.035026	0.014090	2.485836	0.0129
C(3)	0.114616	0.076817	1.492070	0.1357
C(4)	0.230422	0.021773	10.58301	0.0000
Log likelihood	381.0545			
LR test for over-identification:				
Chi-square(1)	0.248190		Probability	0.6184
Estimated A matrix:				
1.000000	0.000000	0.000000	0.000000	
0.000000	1.000000	-0.765130	0.000000	
-3.086205	5.591074	1.000000	0.000000	
-2.230571	2.839670	0.000000	1.000000	
Estimated B matrix:				
0.021685	0.000000	0.000000	0.000000	
0.000000	0.035026	0.000000	0.000000	
0.000000	0.000000	0.114616	0.000000	
0.000000	0.000000	0.000000	0.230422	

The money supply growth has a positive shock on economic growth which has reach a peak in the second quarter and start to converge to equilibrium in the four quarter. Government expenditure and inflation rate have a negative shock on economic growth in the first second quarter then have a positive shock on second quarter onward and have converge to equilibrium in the fourth quarter.

Figure 2. Impulse Response Function

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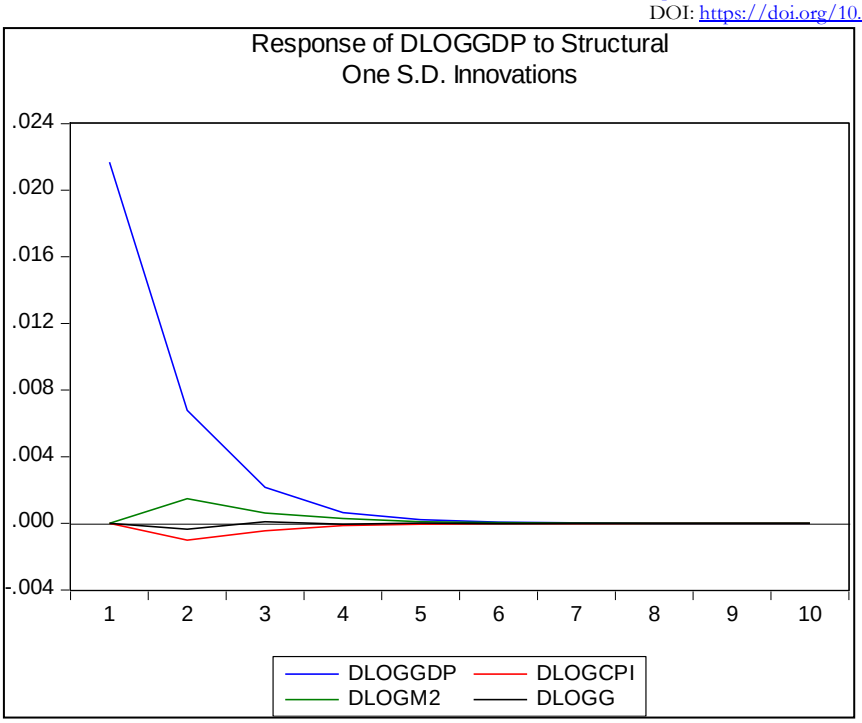

However, the FEVD indicates that the variation of economic growth mainly derive from money supply growth, 0.43% in the second quarter comparing to government expenditure by only 0.02% and inflation rate 0.19%. Moreover, in the ten quarter, money supply growth still plays an important role in the variation on GDP growth, 0.52% comparing to government expenditure by only 0.02% and inflation rate 0.23%. Similarly, the variation of inflation rate is derived by economic growth and money supply growth, 22.76% and 5.31% in the second quarter, respectively. Nevertheless, the government expenditure growth has a small variation in inflation rate, 0.11% in the second quarter and has a slightly increase to 0.13% in the ten quarter whereas 27.61% for GDP growth and 6.09% for M2 growth.

Table 6. Variance Decomposition

Variance Decomposition of DLOGGDP:					
Period	S.E.	DLOGGDP	DLOGCPI	DLOGM2	DLOGG
1	0.021685	100.0000	0.000000	0.000000	0.000000
2	0.022796	99.34305	0.193611	0.439461	0.023882
3	0.022912	99.23817	0.223592	0.512597	0.025639
4	0.022923	99.21829	0.232451	0.523231	0.026031
5	0.022924	99.21586	0.233416	0.524635	0.026086
6	0.022924	99.21544	0.233635	0.524829	0.026096
7	0.022925	99.21539	0.233656	0.524855	0.026097
8	0.022925	99.21538	0.233661	0.524858	0.026097
9	0.022925	99.21538	0.233661	0.524858	0.026098
10	0.022925	99.21538	0.233661	0.524858	0.026098
Variance Decomposition of DLOGCPI:					
Period	S.E.	DLOGGDP	DLOGCPI	DLOGM2	DLOGG
1	0.020353	22.72294	77.27706	0.000000	0.000000
2	0.023690	26.56253	68.00684	5.311486	0.119145
3	0.024186	27.48818	66.39028	5.991112	0.130430
4	0.024255	27.59245	66.19326	6.082372	0.131912
5	0.024264	27.61433	66.15952	6.093939	0.132216
6	0.024266	27.61658	66.15565	6.095510	0.132260
7	0.024266	27.61702	66.15500	6.095708	0.132268

Journal of Ecohumanism
2025
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8	0.024266	27.61706	66.15493	6.095736	0.132269
9	0.024266	27.61707	66.15492	6.095739	0.132269
10	0.024266	27.61707	66.15492	6.095740	0.132270
Variance Decomposition of DLOGM2:					
Period	S.E.	DLOGGDP	DLOGCPI	DLOGM2	DLOGG
1	0.044824	8.002973	2.041507	89.95552	0.000000
2	0.045014	8.141403	2.316851	89.21938	0.322370
3	0.045065	8.291939	2.317312	89.03223	0.358519
4	0.045072	8.297325	2.326187	89.01190	0.364584
5	0.045073	8.299999	2.326177	89.00828	0.365543
6	0.045073	8.300051	2.326366	89.00789	0.365696
7	0.045073	8.300099	2.326365	89.00782	0.365720
8	0.045073	8.300099	2.326369	89.00781	0.365724
9	0.045073	8.300100	2.326369	89.00781	0.365724
10	0.045073	8.300100	2.326369	89.00781	0.365724
Variance Decomposition of DLOGG:					
Period	S.E.	DLOGGDP	DLOGCPI	DLOGM2	DLOGG
1	0.236874	0.772559	4.600694	0.418454	94.20829
2	0.265670	3.836717	8.533540	0.518867	87.11088
3	0.268905	4.071752	8.480380	0.515764	86.93210
4	0.269501	4.093829	8.540546	0.518250	86.84737
5	0.269588	4.102724	8.540169	0.518058	86.83905
6	0.269602	4.103094	8.541434	0.518095	86.83738
7	0.269605	4.103337	8.541443	0.518088	86.83713
8	0.269605	4.103346	8.541471	0.518089	86.83709
9	0.269605	4.103352	8.541472	0.518088	86.83709
10	0.269605	4.103352	8.541473	0.518088	86.83709
Cholesky Ordering: DLOGGDP DLOGCPI DLOGM2 DLOGG					

Conclusion and Recommendation

In Cambodia, price stability has already been achieved for a long period of time, but one thing to be consider by CB is the performance of commercial banks and the ability of CB officers in controlling the banks since there are a lot of commercial banks running the business now. NBC should not offer additional license to new commercial banks. However, long term education improvements for NBC's staffs have to be developed because sound and safe banking system need educated people to control. Banking crisis will occur one day in Cambodia, if the performance of the banks could not be monitor well. Moreover, the market interest rate is very high which limit the poor people to access for the loan. The Government Saving and Loan (KHR only) Micro Finance Institution (MFI) should be established for the poor people who are farmers because even if number of banks and MFIs have increased, but the market interest has not decrease. The more the number of banks, the higher the market interest rate. If the Government of Cambodia like their own people especially the poor, this policy should be applied soon. More importantly, the corruption has to be reduced since Cambodia has been ranked one of the highest corruption countries in the world. The corruption should be reduced from the top to bottom of the government officers. On the other hand, each minister has to be changed to other ministry or replaced by the new one not to hold a position in each ministry for very long period of time (in Cambodia each minister hold a position at the same ministry for almost 20 years). Thus, each ministry has become a family ministry (the related blood to the minister will always hold a top position in each of the ministry which is lead by the minister his or herself).

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