Financial development and Economic Growth: The Case of Cape Verde

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FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH: THE CASE OF CAPE VERDE

By

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Abstract

This study empirically investigates the long-run relationship and short-run dynamics between financial development and economic growth in Cape Verde for the period 1980 - 2011. The study employs the Johansen and Juselius approach to cointegration, pairwise granger causality test for causality and the VECM approach was also explored. The analysis was carried out using three indicators to measure financial development which are the money supply as a percentage of GDP(M2), ratio of credit provided by commercial banks as a percentage of GDP(DCPB) and the ratio of domestic credit to the private sector as a percentage of GDP (DCTP). Control variables such as interest rate and population growth rate were included in the analysis. The empirical result indicates the existence of a long run relationship between economic growth and financial development variables in Cape Verde. However, no short run relationship exists between economic growth and financial development variables but between the control variables and economic growth. The study also found a unidirectional relationship running from financial development to economic growth when money supply(M2) is used as well as a bidirectional causality running from financial development to economic growth and vice versa, when domestic credit provided by commercial bank (DCPB) is used. The study found a unidirectional causality from economic growth to domestic credit to private sector (DCTP).

Keywords: Financial Development, Economic Growth, Endogenous Growth, Cape Verde, VECM.

1. Introduction

The relationship between financial development and economic growth has received considerable attention in the literature. This attention is justified as it is important for a nation to identify factors that promotes its growth and development. The financial system has been identified to play a crucial role in economic growth by favouring innovations through financial services (see Schumpeter, 1912). However, the direction of causality in the literature is still contentious (see Odhiambo, 2009; Christophe et.al, 2012 and Adusei, 2013).

Patrick (1966) identified two hypotheses that may explain the direction of causality. First the demand leading hypothesis in his view, the demand for financial services are dependent upon the growth of real output and the commercialization and modernization of agriculture and other subsistence sectors. Thus, the creation of modern financial institutions, their financial assets and liabilities and related financial services are a response to the demand for these services by investors and savers in the real economy. Second, the supply leading hypothesis; this view argues that the financial system can thus support and sustain the leading sectors in the process of growth. In this case, an expansion of the financial system is induced because of real economic growth.

Many studies, using various econometric methodologies, have been carried out on the relationship between financial development and economic growth in both developed and developing countries (Sunde, 2012). However, at the time of this study, we do not find any study on a country specific case for Cape Verde but cross country evidences such as (Ndebbio, 2004 and Esso, 2009). This study contributes to the literature by examining the relationship between financial development and economic growth in Cape Verde on a country specific case.

The main objective of the paper, therefore, is to empirically investigate the nature of relationship between financial development and economic growth in Cape Verde. The specific objectives include: to examine if there is a long run or short run relationship as well as the direction of causality between financial development and economic growth in Cape Verde. The rest of the paper is structured as follows: Section 2 presents a review of related literatures. In section 3 the theoretical model is presented, while section 4 analyses the empirical results. Section 5 concludes the paper.

2. Literature Review

This section provides a brief review of theoretical considerations that might explain the linkages between financial development and economic growth as well as empirical studies in this area. The modern literature on economic growth started with (Solow, 1956). By the twentieth century, the generally accepted approach to modeling growth was one based on neoclassical growth theory as exemplified in the works of Solow (1956), Sawn (1956) and Cass (1965). The neoclassical framework was based on a production function with a constant return to scale, diminishing returns to each input (labour and capital) and an easy flexibility of substitution between the inputs thus, excluding any specific financial sector influence. Accordingly, growth is exogenously determined (Alghamedi 2012).

However, new growth theories emerged in the 1980s that moved away from the view that growth is exogenously determined. The endogenous growth theory attempted to generate alternative methods of modeling the determination of long-term growth rate by focusing on economic growth, as an endogenous economic system. Romer (1986), Lucas (1988) and Rebelo (1991) developed models characterized by non-decreasing return to a range of capital goods, including human capital.

While the Neo-classical, Neo-Keynesian and endogenous growth models offer different explanations on growth process, growth in total factor productivity is an essential component of economic growth. The Neo-Keynesian and Neo- Classical growth theories put more emphasis on the traditional factors (Physical capital stock, Labour, human capital) and totally ignored the role of institutions and macroeconomic fluctuations as opposed the endogenous growth models such as those of (Pagano 1993) and (Demirguc Kunt& Levin, 2001) introducing factors as government policies, technology macro stability among other variables, which can have an effect on the long term growth rate.

The empirical literature relating to this study varies largely in terms of empirical approach and country coverage. A large number of empirical studies across different countries, contexts and time periods have been undertaken. In general two main econometric approaches are used in testing the correlation between financial development and economic growth: cross-country (panel data) and time series techniques.

Using a pooled cross-sectional regression on 12 sub- Saharan African countries for the period 1970-1996, Allen and Ndikumana (2000) concluded that there is only a positive relationship between financial development and economic growth when the ratio of liquid liability to GDP is used. When other indicators such as the ratio of volume of credit provided by bank to GDP and the ratio of credit to private sector to GDP are used as proxies of financial development, the relationship becomes weak.

Agbetsiafa (2004) in a study of eight Sub-Saharan countries (Ghana, Ivory Coast, Kenya, Nigeria, Senegal, South Africa, Togo, and Zambia), investigate the finance-growth nexus and empirically reports that financial development and economic growth are cointegrated in the long run. In terms of direction of causality, the study reports that there is a unidirectional causality running from financial development to economic development in Ghana, Nigeria, Senegal, South Africa, Togo, and Zambia. Different measures of financial development produce a bi-directional causality in Kenya, Zambia, South Africa, Nigeria, Ghana, and Togo.

Acaravci et.al, 2009 reviewed literature on the finance-growth relationship and investigate the causality between financial development and economic growth in sub-Saharan Africa for the period 1975- 2005. Using panel co-integration and panel GMM estimation for causality, the results of the panel co-integration analysis provide evidence of no long-run relationship between financial development and economic growth. The empirical findings in the paper show a bi-directional causal relationship between the growth of real GDP per capita and the domestic credit provided by the banking sector for the panels of 24 sub-Saharan African countries. The findings imply that African countries can accelerate their economic growth by improving their financial systems and *vice versa*.

Odhiambo, (2009) in a study on the Kenyan economy examine the dynamic causal relationship between financial depth and economic growth for the period 1969 to 2005. Employing two econometric techniques; the dynamic tri-variate Granger causality test and the error correction model (ECM Modelling), the study concludes that one-way direction causality, from economic growth to finance, exists in Kenya. In other words, finance plays a minor role in the attainment of economic growth in Kenya.

Chukwu and Agu (2009) in a multivariate causality between financial depth and economic growth in Nigeria, reports a demand following hypothesis for Nigeria, when financial depth is proxied by banking sector to private sector credit and real broad money supply and supply-leading hypothesis when loan deposit ratio and bank deposit liabilities are used as proxies for financial depth.

Pradhan, 2009 examines the causal nexus between financial development and economic growth in India in a multivariate VAR model based on cointergation and causality test. The empirical results indicate presence of a long run equilibrium relationship between financial development and economic growth. The Granger causality test finds the existence of bidirectional causality between financial development variable used and economic growth, money supply and foreign trade, and market capitalization and foreign trade.

Esso (2009) investigates the finance-growth relationship with focus on ECOWAS countries (Burkina Faso, Cape Verde, Cote d'Ivoire, Ghana, Liberia and Sierra Leone). His study established a long-run relationship between the two variables. The study reveals that financial development precedes economic growth in Ghana and Mali, growth leads finance in Burkina Faso, Cote d'Ivoire and Sierra Leone, and finance and growth cause each other in Cape Verde and Liberia

3. Methodology

Date Source

The study employs annual time series data of gross domestic product at constant prices, board money supply as a percentage of GDP, domestic credit to private sector as a percentage of GDP, Domestic credit provided by banks, as a percentage of GDP, interest rate and population growth rate of the Cape Verde economy. Data are sourced from the World Development Indicator, 2013 edition.

The Model

In this study, the relationship between financial development and economic growth in Cape Verde is based on the endogenous theoretical framework of the AK model. This study adopts the model proposed by Demirguc-Kunt & Levine, 2001to achieve objectives of the study:

$$\text{GDP}_t = \alpha + \beta X_t + \delta Z_t + \varepsilon_t \quad \ldots\ldots (1)$$

where:

Y_t = Log of Gross domestic product at constant prices, X_t = Indicates a set of financial deepening variables,

Z_t = Vector of added to control for effects of the growth determining variables and ε_t = Error term

Variables often included to control for the possible effects of other growth determining factors include inflation, size of government, a measure of openness to trade, exchange rate and human capital among others (Levine, 1997).

Re specifying equation (1), yields

$$\text{LOG(GDP)}_t = \alpha + \text{FD}_t + \text{INF}_t + \text{POP}_t + \varepsilon_t \quad \ldots\ldots (2)$$

where;

Log (GDP): Natural log of Gross Domestic product, FD= proxies for financial development (M2, DCTP and DCPB), INF= Inflation rate, POP= Population Growth Rate and ε = error term.

4. Empirical Results

4.1 *Stationarity Test*

Times variables are often non stationary in nature; they exhibit stochastic trends and need to be checked for stationarity in order to avoid spurious analysis. We therefore, employ Augmented Dickey Fuller (ADF) test and Phillip Perron (PP) test to ascertain the stationarity of variables in the study. The variables were found to be stationary at first difference. The results are presented in table 1 and 2.

4.2 *Co-integration Results*

After establishing the degree of integration the study proceeds to estimate long-run relationship among variables. In examining this relationship the study determines the optimal lag length of the model for Cape Verde. To this end, the VAR test is applied; Lag 2 is indentified as the optimal lag for this model this section is based on the Akaike information criterion (AIC). The result is presented in table 3 in the appendix.

The long-run relationship is tested using Johansen and Juselius co-integration approach. The results are reported in Table 4. The co-integrating result in table 3 reveals that there is a long-run relationship among the Log (GDP), Board money Supply, DCTP, DCPB, interest rate and population growth rate. This is because the critical value at 5% is less than the Trace and Max-Eigenvalue. Both the Trace and Max-eignavlue value indicates 5 cointegrating equations respectively. Therefore, the hypothesis of no co-integration has been rejected at 5% significance level. This study supports (Esso, 2009) finding of long-run relationship in Cape Verde.

4.3 *The Vector Autoregressive Error Correction Results*

Since a long run equilibrium relationship has been established, the study tests for the speed of adjustment using the short run of correction mechanism (ECM) in a VECM framework. Results obtained and presented in table 5 shows that the (ECM) coefficient is negative (-0.108956) and probability (0.0175) is statistically significant at 5%, supports the existence of a long-run relationship running from the financial development proxies (M2, DCTP, DCPB), interest rate and population growth rate to economic growth Log (GDP) proxy by Gross Domestic product at constant Price.

The VECM model for the long-run and short-run analysis:

D(LOG(GDP)) = C(1)*(LOG(GDP(-1)) - 0.0144116080717*M2(-1) - 0.0378096107921*DCTP(-1) + 0.0292701917007*DCPB(-1) - 0.217256152064*INTEREST(-1) + 0.102219906191*POP(-1) -20.8011518528) + C(2)*D(LOG(GDP(-1))) + C(3)*D(LOG(GDP(-2))) + C(4)*D(M2(-1)) + C(5)*D(M2(-2)) + C(6)*D(DCTP(-1)) + C(7)*D(DCTP(-2)) + C(8)*D(DCPB(-1)) + C(9)*D(DCPB(-2)) + C(10)*D(INTEREST(-1)) + C(11)*D(INTEREST(-2)) + C(12)*D(POP(-1)) + C(13)*D(POP(-2)) + C(14)

Table 6 shows the short run speed of adjustment of the independent variables (financial development variables, interest rate and population growth to economic growth. The study found no short run causality from the financial development variables while interest rate and population growth rate adjusts at 23 percent and 34 percent respectively in the short run.

4.4 *Causality Results*

To test for evidence of causality between the variables, the study employed pairwise granger causality test. The full results are presented in the appendix. Table 7 reveals that there exists a unidirectional causality from financial development proxy by money supply as a percentage of GDP (M2) to economic growth proxy by GDP at constant price (log GDP). Bidirectional causality exists from financial development to economic growth when domestic credit provided by the bank (DCPB) is used to proxy financial development. However, the study finds a unidirectional causality from economic growth to financial development when domestic credit to Private sector (DCTP) is used. The study also found a unidirectional relationship from population growth to economic growth and no causal relationship between Interest rate, proxy by lending rate and economic growth in Cape Verde.

In summary, the result that financial development leads economic growth in Cape Verde is consistent with the finance-led growth (or supply-leading) hypothesis of Patrick (1966) previously studied by King and Levine (1993) and can be explained by the idea that financial system liberalization enables to mobilize domestic savings. On the other hand, GDP at constant price (Log GDP) significantly causes financial development in Cape Verde, lend some support to the demand following view initially stated by Robinson (1952) and recently confirmed (Esso 2009). In other words, economic development leads to an improvement in the financial system in Cape Verde.

5. Conclusion

This paper has examined the relationship between financial development and economic growth in Cape Verde for the period 1980-2011. Economic growth in Cape Verde is proxy by GDP at constant prices, while financial development is proxy by three variables used in the literature (Money supply as a percentage of GDP, Domestic credit provided by banks and domestic credit to the private sector). The study also included variables that can influence economic growth such as Interest rate proxy by (Lending Rate) and Population growth rate. The study employed the Pairwiase Granger causality tests and the VEMC. We also construct vector autoregressive models and compute modified Wald statistics to test for the short run causality from financial development to economic growth. The empirical results show that the direction of causality between financial development and economic growth is sensitive to the choice of measurement of financial development in Cape Verde. We found both Unidirectional and bidirectional relationship from financial development to economic growth in Cape Verde. The study also found a long run relationship between financial development and economic growth. However, we found no short run relationship between these variables in Cape Verde. The study there proposes that domestic credit to the private sector should be challenged to productive sectors of the economy, which in turn lead to economic growth and development in Cape Verde.

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Appendix

Table 1: Stationarity of Variables at Levels

Variables	ADF T Statistics	Mckinnon Critical Value (5%)	PP Adj T Statistics	McKinnon Critical Value (5%)	Decision
Log(GDP)	0.689876	-2.963972	0.601068	-2.963972	NonStationary
M2	-1.180899	-2.963972	-0.89651	2.963972	NonStationary
DCTP	0.551510	-2.963972	1.263217	2.963972	NonStationary
DCPB	-1.116317	-2.963972	-0.934176	2.963972	NonStationary
INTEREST	-2.078849	-2.963972	-2.068989	2.963972	NonStationary
POP	-1.622182	-2.963972	-3.046667	2.963972	NonStationary

Table 2:Stationarity of Variables at First Difference

Variables	ADF T Statistics	McKinnon Critical Value (5%)	PP Adj T Statistics	McKinnon Critical Value (5%)	Decision	Order Of Integration
Log(GDP)	-4.154771	-2.963972	-4.196645	-2.963972	Stationary	I(1)
M2	-3.257129	-2.963972	-3.222884	-2.963972	Stationary	I(1)
DCTP	-5.592613	-2.963972	-5.604416	-2.963972	Stationary	I(1)
DCPB	-6.104902	-2.963972	-20.27426	-2.963972	Stationary	I(1)
INTEREST	-5.396810	-2.963972	-5.396519	-2.963972	Stationary	I(1)
POP	1.15116	-2.963972	-3.346465	-2.963972	Stationary	I(1)

Source: computed by Author
Note: 5% level of significance is used.

Table 3: VAR Optimal Lag Selection

VAR Lag Order Selection Criteria
Endogenous variables: LOG(GDP) M2 DCTP DCPB INTEREST POP
Exogenous variables: C
Date: 09/04/13 Time: 13:36
Sample: 1980 2011
Included observations: 30

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-363.2436	NA	1976.583	24.61624	24.89648	24.70589
1	-175.8867	287.2806	0.086385	14.52578	16.48746	15.15334
2	-99.37659	86.71144*	0.007953*	11.82511*	15.46822*	12.99057*

* 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

Table 4: Co-integration Results for Cape Verde

Trace Test K=2				**Maximum Eigenvalues Test K =2**			
Ho	H_A	(仏trace)	Critical values (5%)	Ho	H_A	(仏Max)	Critical values (5%)
r 与0	r > 0	234.6768*	95.75366	r 与0	r > 0	75.95193*	40.07757
r 与1	r > 1	158.7248*	69.8189	r 与1	r > 1	46.92869*	33.87687
r 与2	r > 2	111.762*	47.85613	r 与2	r > 2	44.05431*	27.58434
r 与3	r > 3	67.74184*	29.79707	r 与3	r > 3	35.68137*	21.13162
r 与4	r > 4	32.06047*	15.49471	r 与4	r > 4	28.59876*	14.26460
r 与5	r > 5	3.461714	3.841466	r 与5	r > 5	3.461714	3.841466

Source: Author 的 Computation
Note: Trace test indicates 5 cointergating eqn(s) at the 0.05 level
Max-eigenvalue test indicates 5 cointegrating eqn(s) at the 0.05 level.
* Denotes rejection of the hypothesis at the 0.05 level.

Table 5: VECM Long Run and Short Run Estimates

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.108956	0.040802	-2.670354	0.0175
C(2)	-0.072150	0.250633	-0.287870	0.7774
C(3)	0.028902	0.183126	0.157823	0.8767
C(4)	0.000712	0.001412	0.504176	0.6215
C(5)	-0.000511	0.001423	-0.359051	0.7246
C(6)	-0.002207	0.001220	-1.808577	0.0906
C(7)	-0.000688	0.001304	-0.527790	0.6054
C(8)	0.001168	0.001040	1.123246	0.2790
C(9)	0.001810	0.001135	1.594817	0.1316
C(10)	-0.028893	0.008366	-3.453424	0.0035
C(11)	-0.017760	0.006866	-2.586539	0.0206
C(12)	-0.129158	0.039070	-3.305805	0.0048
C(13)	0.129264	0.038186	3.385091	0.0041
C(14)	0.062521	0.019025	3.286165	0.0050

R-squared	0.622649	Mean dependent var	0.058455
Adjusted R-squared	0.295611	S.D. dependent var	0.023996
S.E. of regression	0.020139	Akaike info criterion	-4.666025
Sum squared resid	0.006084	Schwarz criterion	-4.005951
Log likelihood	81.65736	Hannan-Quinn criter.	-4.459298
F-statistic	1.903906	Durbin-Watson stat	1.894335
Prob(F-statistic)	0.116595		

Source: Author 的 Computation

Table 6: Short Run Analysis

Variables	**Normalised Restrictions (=0)**	**Probability**	**Decision**
M2	C(4)=C(5)=0	0.874	No Short run relationship
DTCP	C(6)=C(7)=0	0.1939	No Short run relationship
DCPB	C(8)=C(9)=0	0.2513	No Short run relationship
INTEREST	C(10)=C(11)=0	0.0023*	Short run relationship
POP	C(12)=C(13)=0	0.0034*	Short run relationship

Source: Author 的 Computation

* Denotes rejection of the hypothesis at the 0.05 level.

Table 7: Pairwise Causality test

Pairwise Granger Causality Tests
Date: 09/04/13 Time: 14:29
Sample: 1980 2011
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
M2 does not Granger Cause LOG(GDP)	30	3.45871	0.0472
LOG(GDP) does not Granger Cause M2		1.58007	0.2258
DCTP does not Granger Cause LOG(GDP)	30	0.57085	0.5722
LOG(GDP) does not Granger Cause DCTP		2.48108	0.1040
DCPB does not Granger Cause LOG(GDP)	30	3.87551	0.0342
LOG(GDP) does not Granger Cause DCPB		3.70380	0.0390
INTEREST does not Granger Cause LOG(GDP)	30	0.84838	0.4401
LOG(GDP) does not Granger Cause INTEREST		0.08162	0.9219
POP does not Granger Cause LOG(GDP)	30	2.48074	0.1040
LOG(GDP) does not Granger Cause POP		0.50795	0.6078
DCTP does not Granger Cause M2	30	1.79301	0.1872
M2 does not Granger Cause DCTP		3.98620	0.0314
DCPB does not Granger Cause M2	30	10.9234	0.0004
M2 does not Granger Cause DCPB		1.44632	0.2545
INTEREST does not Granger Cause M2	30	1.45189	0.2532
M2 does not Granger Cause INTEREST		0.11377	0.8929
POP does not Granger Cause M2	30	0.78865	0.4654
M2 does not Granger Cause POP		1.25392	0.3027
DCPB does not Granger Cause DCTP	30	3.09049	0.0632
DCTP does not Granger Cause DCPB		0.31198	0.7348
INTEREST does not Granger Cause DCTP	30	0.19120	0.8272
DCTP does not Granger Cause INTEREST		0.09273	0.9118
POP does not Granger Cause DCTP	30	0.08938	0.9148
DCTP does not Granger Cause POP		0.49498	0.6154
INTEREST does not Granger Cause DCPB	30	0.43333	0.6531
DCPB does not Granger Cause INTEREST		0.56664	0.5745
POP does not Granger Cause DCPB	30	0.01177	0.9883
DCPB does not Granger Cause POP		0.24484	0.7847
POP does not Granger Cause INTEREST	30	5.73217	0.0089
INTEREST does not Granger Cause POP		4.15178	0.0277

Table 8: VECM Estimates

Vector Error Correction Estimates
Date: 09/04/13 Time: 15:07
Sample (adjusted): 1983 2011
Included observations: 29 after adjustments
Standard errors in ( ) & t-statistics in [ ]

Cointegrating Eq:	CointEq1
LOG(GDP(-1))	1.000000
M2(-1)	-0.014412 (0.00242) [-5.94433]
DCTP(-1)	-0.037810 (0.00267) [-14.1867]
DCPB(-1)	0.029270 (0.00448) [6.53470]
INTEREST(-1)	-0.217256 (0.01849) [-11.7476]
POP(-1)	0.102220 (0.03062) [3.33867]
C	-20.80115

Error Correction:	D(LOG(GDP))	D(M2)	D(DCTP)	D(DCPB)	D(INTEREST)	D(POP)
CointEq1	-0.108956 (0.04080) [-2.67035]	-2.128226 (7.72494) [-0.27550]	17.81558 (7.81549) [2.27952]	-1.488116 (11.1666) [-0.13327]	0.878544 (1.83611) [0.47848]	0.149410 (0.10648) [1.40324]
D(LOG(GDP(-1)))	-0.072150 (0.25063) [-0.28787]	-14.51777 (47.4519) [-0.30595]	20.25064 (48.0081) [0.42182]	-23.32294 (68.5927) [-0.34002]	-10.21105 (11.2786) [-0.90535]	-0.245071 (0.65404) [-0.37470]
D(LOG(GDP(-2)))	0.028902 (0.18313) [0.15782]	-40.02451 (34.6709) [-1.15441]	62.81791 (35.0773) [1.79084]	85.52710 (50.1175) [1.70653]	14.71712 (8.24076) [1.78589]	0.368313 (0.47788) [0.77073]
D(M2(-1))	0.000712 (0.00141) [0.50418]	0.625691 (0.26733) [2.34051]	-0.026914 (0.27046) [-0.09951]	-0.052987 (0.38643) [-0.13712]	-0.079855 (0.06354) [-1.25675]	0.002509 (0.00368) [0.68092]
D(M2(-2))	-0.000511 (0.00142) [-0.35905]	0.054242 (0.26940) [0.20134]	0.364497 (0.27256) [1.33731]	0.664777 (0.38943) [1.70707]	0.041204 (0.06403) [0.64348]	-0.002978 (0.00371) [-0.80198]

D(DCTP(-1))	-0.002207	-0.235569	0.169000	-0.279460	-0.032235	0.001230
	(0.00122)	(0.23106)	(0.23376)	(0.33400)	(0.05492)	(0.00318)
	[-1.80858]	[-1.01953]	[0.72295]	[-0.83671]	[-0.58695]	[0.38619]
D(DCTP(-2))	-0.000688	0.079762	0.005137	-0.166838	-0.029357	0.002299
	(0.00130)	(0.24697)	(0.24987)	(0.35700)	(0.05870)	(0.00340)
	[-0.52779]	[0.32296]	[0.02056]	[-0.46733]	[-0.50010]	[0.67539]
D(DCPB(-1))	0.001168	-0.307439	-0.574296	-0.751379	0.006824	-0.001793
	(0.00104)	(0.19688)	(0.19918)	(0.28459)	(0.04679)	(0.00271)
	[1.12325]	[-1.56159]	[-2.88325]	[-2.64022]	[0.14583]	[-0.66069]
D(DCPB(-2))	0.001810	0.129133	-0.290070	-0.737579	-0.063583	9.43E-05
	(0.00113)	(0.21487)	(0.21739)	(0.31060)	(0.05107)	(0.00296)
	[1.59482]	[0.60098]	[-1.33432]	[-2.37467]	[-1.24497]	[0.03184]
D(INTEREST(-1))	-0.028893	-0.809550	2.784861	1.955553	-0.058940	0.034298
	(0.00837)	(1.58399)	(1.60256)	(2.28969)	(0.37649)	(0.02183)
	[-3.45342]	[-0.51108]	[1.73776]	[0.85407]	[-0.15655]	[1.57096]
D(INTEREST(-2))	-0.017760	-0.905949	1.508072	0.675286	-0.100550	0.026989
	(0.00687)	(1.30000)	(1.31524)	(1.87918)	(0.30899)	(0.01792)
	[-2.58654]	[-0.69688]	[1.14662]	[0.35935]	[-0.32541]	[1.50621]
D(POP(-1))	-0.129158	0.575403	10.99826	17.72901	-2.231096	1.527324
	(0.03907)	(7.39704)	(7.48375)	(10.6926)	(1.75817)	(0.10196)
	[-3.30580]	[0.07779]	[1.46962]	[1.65806]	[-1.26899]	[14.9803]
D(POP(-2))	0.129264	0.093127	-14.15843	-10.33668	2.040428	-0.889068
	(0.03819)	(7.22971)	(7.31446)	(10.4507)	(1.71840)	(0.09965)
	[3.38509]	[0.01288]	[-1.93568]	[-0.98909]	[1.18740]	[-8.92198]
C	0.062521	4.218350	-2.506570	0.587944	0.057232	-0.016155
	(0.01903)	(3.60205)	(3.64427)	(5.20684)	(0.85615)	(0.04965)
	[3.28617]	[1.17110]	[-0.68781]	[0.11292]	[0.06685]	[-0.32539]
R-squared	0.622649	0.636437	0.487516	0.521393	0.508337	0.977678
Adj. R-squared	0.295611	0.321349	0.043363	0.106600	0.082230	0.958332
Sum sq. resids	0.006084	218.0748	223.2173	455.6749	12.32000	0.041430
S.E. equation	0.020139	3.812915	3.857610	5.511654	0.906274	0.052554
F-statistic	1.903906	2.019869	1.097630	1.256995	1.192979	50.53622
Log likelihood	81.65736	-70.40358	-70.74154	-81.08923	-28.73617	53.84108
Akaike AIC	-4.666025	5.820936	5.844244	6.557878	2.947322	-2.747661
Schwarz SC	-4.005951	6.481010	6.504318	7.217952	3.607396	-2.087587
Mean dependent	0.058455	1.235535	1.789230	1.784575	0.114166	-0.030270
S.D. dependent	0.023996	4.628430	3.944070	5.831213	0.946003	0.257458

Determinant resid covariance (dof adj.)	0.000327
Determinant resid covariance	6.26E-06
Log likelihood	-73.16066
Akaike information criterion	11.25246
Schwarz criterion	15.49579