

Public Expenditure, Inflation and Economic Growth in Cape Verde

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Outline

- 1 Introduction
- 2 A Brief Review of the Literature
- 3 Cape Verde: a little history
- 4 Empirical analysis
 - Data and Methodology
 - Estimation and results
 - Output, Inflation and Fiscal policy
 - Private Sector and Fiscal policy
- 5 Conclusion and policy implications

Introduction

- Effects of Fiscal Policy in the economy have been widely debated
 - Keynesians
 - Monetarists
- Problem of Fiscal Policy in developing countries
 - difficulties in collecting taxes and institutional weaknesses
 - high informality of the economy
 - difficulties in accessing to external capital
- This paper contributes to the literature in three different ways:
 - 1 Analysis of the behaviour of fiscal policy in a small economy completely vulnerable to international macroeconomic situation.
 - 2 Contribute empirically to the extensive debate on the macroeconomic effects of fiscal policy.
 - 3 Effects of fiscal policy in a different types of macro variables in

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A Brief Review of the Literature

- Abu-Bader and Abu-Qarn [2003] (Egypt, Israel, and Syria): the relationship depends according to the type of expenditures.
- Carmignani [2010] (African countries) and Schclarek [2007] (21 developing countries): fiscal policy has Keynesian effects on consumption.
- Ghura [1995] (33 countries in Sub-Saharan Africa): Budget deficit ratio has a small and significant positive effect on inflation and a negative effect on economic growth.
- Gupta and Verhoeven [2001] (set of developing countries): they showed that it depend from country to country.
- Dakurah, Davies and Sampath [2001] (62 developing countries): the relationship depends from country to country and in most of the country there is no relationship between fiscal policy and economic growth.

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Cape Verde: a little history

- A small archipelago located approximately 500km from the western Africa
- 0.5 million people
- Became independent in 1975 (with single party until the beginning of 1991)
- Shortage of natural resources
- From Least Developed Countries to Middle Income Country (2004)
- One of the most democratic and well governed country in Africa
- FDI, remittances and public aid to development are the main engine of growth

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Data and Methodology

- The annual data (1981 to 2010) were obtained from the World Development Indicators and Global Development Finance - World Bank
- All variables are available at 2000 constant price, except inflation rate
- P (inflation) is the annual growth rate of the GDP implicit deflator which shows the rate of price change in the economy as a whole.
- G (fiscal policy) is the general government final consumption expenditure
- Y (output) is the real gross domestic product.
- C (consumption) is the household final consumption expenditure
- I (investment) is the gross fixed capital formation

Data and Methodology

- Using ADF unit root test at level of 5%, all series appear to be non-stationary in level
- VAR model (and the Johansen and Juselius (1992) approach to explore possible cointegration relationships in the data)

$$y_t = \phi_1 y_{t-1} + \phi_2 y_{t-2} + \cdots + \phi_{\phi} y_{t-\phi} + \mu + \epsilon_t \quad (1)$$

$$\Delta y_t = \sum_{i=1}^{\phi-1} \Gamma_i \Delta y_{t-i} + \Pi \Delta y_{t-\phi} + \mu + \epsilon_t \quad (2)$$

For testing the rank of Π we use two tests proposed by Johansen (1995):

$$q_{ts} = -T \sum_{i=r+1}^n \ln(1 - \lambda_i) \quad (\text{Trace statistic})$$

$$q_{lmax} = -T \ln(1 - \lambda_r) \quad (\text{maximum eigenvalue statistic})$$

Estimation and results

- Output, Inflation and Fiscal policy
- Private Sector and Fiscal policy

Output, Inflation and Fiscal policy

- VAR(2) and 3 variables Y, P, G (Akaike Criterion (AIC) and the LR test)

Table : Analysis of Residuals' Statistics for the VAR(2) equation

Stats	Res. Y	Res. G	Res. P
Mean	0.0000	0.0000	0.0000
SD	0.0224	0.0585	8.8532
Skewness	0.4427	0.5264	2.9857
kurtosis	2.6708	2.9939	13.8138
Normality - test	1.041	2.025	149.496
ARCH - test	0.29876	0.00002	0.02621
AC	0.0559	0.0002	0.2972

Note: Normality test correspond to Jarque-Bera test and AC represent the Ljung-Box test for auto-correlation.

Output, Inflation and Fiscal policy

Table : Johansen tests for cointegration rank

Max. rank	Eigenvalue	Trace statistic		Max statistic	
		Trace	5% Crit. value	$\lambda - \max$	5% Crit. value
0	-	40.0653	29.68	27.3843	20.97
1	0.62394	12.6811*	15.41	12.4417*	14.07
2	0.35876	0.2394	3.76	0.2394	3.76
3	0.00851	-	-	-	-

Output, Inflation and Fiscal policy

Table : Cointegrating and adjustment matrix

	Cointegrating matrix			Adjustment matrix		
	β_1	β_2	β_3	α_1	α_2	α_3
Y	4,5163	-9,6904	3,1480	0,0010 (0.8269)	0,0020	0,0021
G	-4,4891	12,512	-0,9224	0,0183 (0.2155)	-0,0407	0,0013
P	0,1743	0,0481	0,0297	-9,2586 (0.0000)	-3,3211	0,1929

Weak exogeneity accepted (LR test): G and Y (with p-value equal to 0.2155 and 0.8269, respectively)

Weak exogeneity rejected: P (p-value equal to 0.0000)

Output, Inflation and Fiscal policy

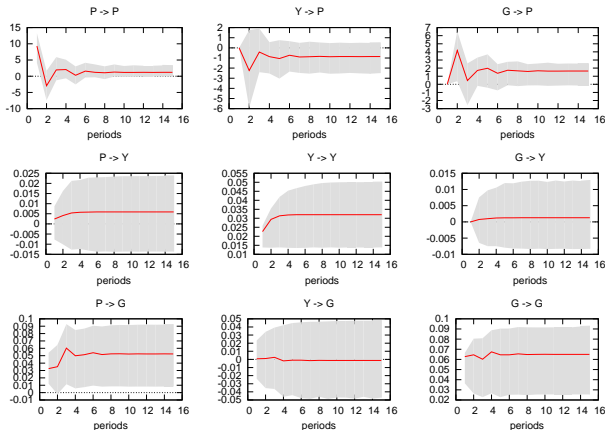


Figure : Impulse -response analysis expenditure, output and inflation

Private Sector and Fiscal policy

Table : Johansen tests for cointegration rank

Max. rank	Eigenvalue	Trace statistic		Max statistic	
		Trace	5% Crit. value	$\lambda - \max$	5% Crit. value
0	-	35.6052	29.68	23.5245	20.97
1	0.55567	12.0808*	15.41	12.0263*	14.07
2	0.33946	0.0545	3.76	0.0545	3.76
3	0.00188	-	-	-	-

Private Sector and Fiscal policy

Table : Cointegrating and adjustment matrix

	Cointegrating matrix			Adjustment matrix		
	β_1	β_2	β_3	α_1	α_2	α_3
G	-8,3910	-2,4415	2,1619	0,0630 (0.0000)	-0,0030	-0,0009
C	4,1604	9,9644	-2,2603	-0,0125 (0.0425)	-0,0054	-0,0012
I	1,6617	-8,9723	-1,1058	-0,0051 (0.8159)	0,0636	-0,0015

Weak exogeneity accepted (LR test): I (with p-value equal to 0.8159)

Weak exogeneity rejected: G and C (p-value equal to 0.0000 and 0.0425, respectively)

Private Sector and Fiscal policy

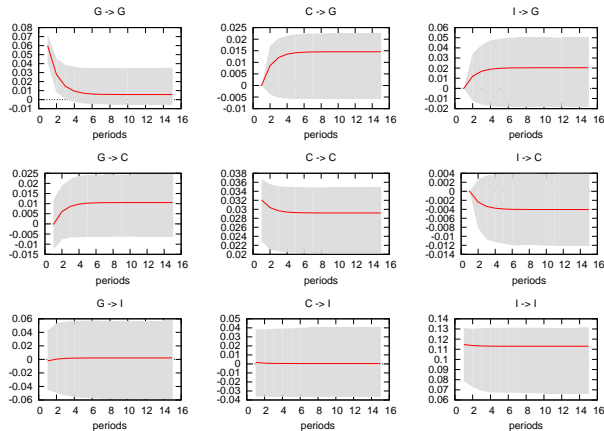


Figure : Impulse -response analysis for expenditure, consumption and investment

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Conclusion and policy implications

- Fiscal policy has no effect in boosting economic growth in Cape Verde.
- Fiscal policy cannot explain the investment behaviour, but has a Keynesian effect on consumption
- Investment \Leftrightarrow FDI
- This work can be complemented with an analysis of the effects of different types of spending in the economy in order to highlight the particular effects that each one has on macroeconomic variables, and also analyse the effects of fiscal policy through the taxes.
- This study was also limited by the availability of data, which in addition to provide a better definition of proxies, could also allow more control variables in the model without losing degrees of freedom.