ECONOMIC POLICY NOTE:

The Cyclically Adjusted Balance

Saint Lucia

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ABSTRACT

This paper analyses fiscal policy in Saint Lucia using the cyclically-adjusted fiscal balances (CAB). The cyclically-adjusted fiscal balance corrects for the effects of the business cycle and temporary fluctuations in revenue and expenditure and therefore, is a better indicator of the underlying fiscal position. It filters the impact of cyclical movements (automatic stabilizers) and assesses the underlying fiscal stance; thus measuring the discretionary fiscal position. This study finds that discretionary fiscal policy in Saint Lucia is mainly pro-cyclical with the fiscal impulse adding to aggregate demand in periods of above average economic activity, and reinforcing downturns in periods of negative output gaps.

1.0 __INTRODUCTION__

A country's fiscal position is affected by several factors including external events which are often beyond the fiscal policy scope which therefore provide inaccurate signals on a country's fiscal position. One of the best approaches to evaluating fiscal performance is the cyclically-adjusted budget balance (CAB). This indicator captures only the effects of discretionary fiscal policy, as it eliminates the impact of cyclical fluctuations on fiscal variables. In other words, CAB offers an estimation of fiscal balances abstracting from economic conditions. The cyclically adjusted balance (CAB) provides appropriate estimates of an economy's fiscal stance as it decomposes the automatic response (automatic stabilizer) and discretionary policies or the measure of the performance of public finances. This indicator therefore can be used to more accurately identify fiscal slippages and thus be used as an early warning indicator for appropriate fiscal adjustments.

Monitoring a country's fiscal framework has regained a great level of importance in the most recent past in light of the latest global developments as well as regional challenges. The global crisis, which has affected both advanced and developing economies, has necessitated a more detailed analysis of the underlying factors behind the deterioration of fiscal positions.

CAB was first introduced by Blanchard (1990), who proposed this indicator to distinguish between the contribution of discretionary fiscal policy to a given change in the overall budget deficit from the effect of economic activity. In practice the range of existing methodologies for computing CAB are mainly two alternative approaches. In our case, we have used the international organisations, IMF approach. The IMF, which has been computing CAB for G7 countries since 1990, has published two detailed technical notes on cyclical decomposition of fiscal balances (Fedelino et. al, 2009; Bornhorst et al, 2011) and extended this analysis to emerging and developing market economics since 2010. The IMF has constantly been encouraging economies to adopt and publish fiscal stance in terms of CAB. Some developed countries (e.g. United Kingdom, United States, Canada, New Zealand, Netherlands, Sweden, Switzerland) have been using CAB. In the EU, since 2005 reforms of Stability and Growth Pact, CAB has taken the centre stage of fiscal surveillance. Among the emerging and developing

economies (EMDEs), however, computing fiscal stance in terms of CAB has remained limited.

The difficulties surrounding adaptation of this approach center on disagreements surrounding how best to estimate unobserved potential-output. During certain economic or political episodes, CAB encounters several drawbacks with regard to its estimation and interpretation process. The measurement of this indicator is highly dependent on accurate estimates of output gap and budgetary elasticity parameters for example. These may give rise to misleading interpretations of this indicator, giving distorted signals about the fiscal position and fiscal sustainability of a country. However, Larch and Turrini (2009) stress that rather than abandoning this indicator, efforts should be geared towards improving the indicator.

This note attempts to analyse the cyclically adjusted fiscal stance for Saint Lucia, using the IMF methodology. Section 2 examines the research underpinnings while section 3 looks at the methodology. The results and key recommendations are highlighted in section 4 and 5 respectively.

2.0 **RELATED LITERATURE**

There is a vast literature on computing the cyclically adjusted budget balance in the international community with a growing number of studies having been conducted on the Caribbean region. There are two main approaches to calculating the CAB. The first developed by Blanchard (1990), involves estimating cyclically adjusted measures of expenditures and revenues directly from regression-based analysis. Revised versions of this approach use structural VAR methodologies (Dalsgaard and de Serres, 1999) and unobserved component models (Camba-Mendez and Lamo, 2002). The second approach is the most commonly used and is the one generally used by national governments and international institutions for the purpose of budgetary surveillance, including the European Commission, the OECD, the IMF and the ECB. This second approach for computing the CAB is a two-stage procedure: a cyclical component of the budget balance is first estimated and subsequently subtracted from the nominal budget.

One of the most common studies on estimating cyclically adjusted fiscal balances is Giorno et al (1995) for the Organisation for Economic Corporation and Development (OECD) over the period 1979 – 1996. Tax and elasticity assumptions are estimated for four tax categories including corporate taxes, personal income taxes, social security, indirect taxes based on assumptions for marginal and average tax rates for OECD countries and utilizing simple linear regressions. The results of this study revealed fairly close actual and structural budget balances over the sample period, with structural balances varying pro-cyclically with observed deficits.

In 2005, Girouard et al. improved the OECD methodology, by taking into account tax reforms enacted since the previous updates in 1999, and re-specifying the equations for revenue and expenditure elasticities. The country coverage was also extended to include eight OECD members that were not covered in the previous cyclical adjustment exercise. The improvement in methodology and expansion of the country coverage however, **did not significantly change the cyclical adjustment estimates with elasticities of corporate, personal and indirect taxes estimated at 1.5, 1.3 and 1.**0 respectively, while the elasticity of social security contributions averaged 0.7. More recently, Duade et al (2011) re-specified the OECD methodology to take account of the commodity cycle in several Latin American countries over the period 1990 to 2009. This was deemed an important component due to the dependence of the fiscal accounts of most Latin American countries on commodity revenues. The results did not differ much except that discretionary fiscal policy was shown to be pro-cyclical in Argentina, Brazil, Costa Rica, Mexico and Uruguay, but neutral in Chile, Columbia and Peru.

Within the Caribbean region, Samuel (2009) examined the cyclicality of fiscal policy in several Caribbean countries, including the six independent members of the ECCU. In keeping with the general observations in the wider literature, structural fiscal balance estimates in the Caribbean suggests that fiscal policy has been generally pro-cyclical. Evidence of fiscal pro-cyclicality has wider relevance, in that it implies a ratchet effect on public sector debt levels: debt levels increases more in expansions than it contracts during periods of subdued economic activity. Using a fixed effects panel model and differentiating between positive and negative output gaps, Samuel (2009) found some evidence of this asymmetric effect. Other related literature within the ECCU region point

to the buoyancy of fiscal policy as examined by Mitchel and Andrews (1999) over the period 1980 – 1997.   Using calculated time varying elasticities derived from a Box-Cox transformation, Michel and Andrews (1999) examined tax buoyancies of the actual tax revenue data. The results pointed to a general decline in bouyancies over the period for all the ECCU members except St Kitts and Nevis. This according to the authors can be attributed to difficulties in tax administration, and instabilities in the tax system. Similarly, the Commission on Tax and Tax Administration Reform (2004) calculated tax bouyancies for the ECCU aggregate from 1980 to 2000. The findings of this study were similar to Mitchel and Andrews (1999), in that while the aggregate ECCU tax system was generally buoyant, buoyancy declined over the review period. Some of the issues highlighted by the Commission pointed to administrative deficiencies, narrow tax bases, and ineffective management in the granting of tax concessions as possible reasons for the decline in buoyancy levels. In Barbados, several attempts to examine the tax buoyancy in that country by Howard (1979, 1992), Skeete et al (2003), and Williams (2001) over periods extending from 1976 to 1999 utilized several methodologies and different layers of aggregation of tax revenue data. The results were relatively similar to that of the ECCU region, pointing to a buoyant tax system in Barbados, with elasticities ranging from 0.68 (Williams 2001), to 1.14 (Skeete et al, 2003).

In Trinidad and Tobago, (Cotton et al 2013) estimated cyclical and structural fiscal balances with due consideration to the effect of the impact of commodity revenues on the budget balance, given that Trinidad and Tobago derives substantial revenue from energy and energy related sectors. The authors concluded that the fiscal position was predominantly pro-cyclical.

3.0   __METHODOLOGY__

Historically, analyst have used the overall balance and the primary balance as the variables of choice in an effort to establish the extent in which government fiscal policy interventions would impact the economy. However, this methodology had one major shortcoming, which was, that it assumed that changes in the overall balance was entirely as a result of governments discretionary fiscal policies, and that the impact of other factors such as the business cycle effect were relatively mute.

In order to deal with this shorting in this methodology academics and public policy practitioners, have employed two alternative methodologies for the calculating of the cyclical fiscal balance, structural fiscal balance and the fiscal impulse, which differs slightly from each other. The first was developed by the International Monetary Fund (IMF[1]) commonly referred to as the aggregate approach and the other by Organization for Economic Co-operation and Development (OECD[2]) also called the disaggregated approach. Schinasi (1986) in his review of two main-stream methodologies used for calculating the fiscal impulse, conducted critical comparison of the IMF and OECD methodologies for calculation the fiscal impulse discovered four (4) differences;

- *The OECD includes a fiscal drag under the presumption that it is part of the structure of the fiscal policy, while the IMF excludes its adjusted measure of the fiscal balance.*

- *Both the IMF and the OECD adjust for cyclical factors but does so differently.*

- *The OECD estimates a marginal tax and expenditure rates from a structural model whereas the IMF assumes unit income-elasticity of its parameters and uses historical average tax and spending rates.*

- *Each agency uses different estimates of potential output gap.*

This paper uses the International Monetary Fund's approach to derive the cyclical fiscal balance and the fiscal impulse for St. Lucia although both methodologies are discussed in detail for clarification purposes. This methodology was chosen due to its simplistic nature and its parsimonious data demand. However, a major short-coming of this methodology is that it will only yield accurate result if the major fiscal aggregates

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[1] See Bornhorst et al. (2011)
[2] See Schinasi (1986)

respond in a similar fashion towards changes in the output gap and the composition of the revenue are expected to be relatively similar. In addition, the paper draws heavily from the technical work of Bornhorst et al. (2011) of the Fiscal Department of IMF. Bornhorst et al. identified three (3) key steps in adjusting for economic cycles and other non-cyclical factors; (i) Adjusting for relevant one-off factors, this step is pretty straight forward, (ii) remove cyclical factors and (iii) removing impacts of other cycles and factors. This section will attempt to highlight those steps in more simplistic and abbreviated manner.

CYCLICAL ADJUSTMENT

International Monetary Fund Approach

The base model/equation used by the IMF to decompose the overall balance is as follows;

$$OB = CB + CAB$$

Where *OB* is defined as the overall balance, *CB* is the cyclical balance and *CAB* is the cyclically adjusted balance which is the residual of the overall balance after the cyclical factors have been removed. One of the major differences between the IMF and OECD approach is the calculation of the *CAB*. The IMF uses cyclical adjustment of aggregate revenues R^{CA} and expenditure G^{CA} in the derivation of the *CAB*, whereas the OECD uses cyclical adjustment of specific revenue and expenditure line items. See equation below:

$$CAB = R^{CA} - G^{CA}$$

The cyclically adjusted revenues are obtained by adjusting actual revenues for deviations of actual from potential. To determine the impact cyclical factors would have on revenue performance, the IMF uses elasticities to determine the magnitude of the cyclical effects; $R^{CA} = R(\frac{Y*}{Y})^{\varepsilon R,Y}$. This cyclically adjusted revenue formula can be interpreted as follows. If the revenue elasticity is higher than one, i.e. ($\varepsilon^{R, Y}$ > 1, for each percentage increase in the output gap should result in a change in revenue larger than one. The cyclically adjusted expenditure follows the same formula $G^{CA} = R(\frac{Y*}{Y})^{\varepsilon G,Y}$. However, the cyclically adjusted expenditure assumes a zero expenditure elasticity, ($\varepsilon^{G,}$

[Y] =0), in that case cyclically adjusted expenditure is equal to actual expenditure, G[CA] = G, which suggest that the vagaries in the business cycle does not impact the expenditure levels. It should be noted that the IMF uses one-zero elasticity for revenue and expenditure respectively based on previous research.

OECD Approach

The OECD approach differs from that of the IMF due to the fact that it assesses individual revenue and expenditure line items as opposed to the IMF which uses the aggregate figures. The disaggregated cyclically adjusted overall balance formula is as follows;

$$CAB = [(\sum_{i=1}^{N} R^{CA}) - G_{cur}^{CA} + R^{NCA} - G^{NCA}],$$

Where R_{ith}^{CA} is the cyclically adjusted component of selected revenue lines and G_{cur}^{CA} represents cyclically adjusted government expenditure lines. These are then decomposed even further where $R_i^{ca} = R_i[\left(\frac{y*}{y}\right)\varepsilon_{Bi,y}]\varepsilon^{Ri,Bi}$, with $\varepsilon_{Bi,y}$ and $\varepsilon^{Ri,Bi}$ being the elasticity of revenues with regards to the tax base (Bi) and the elasticity of the tax base to output fluctuations. The same line of reasoning applies to the government expenditures; $G_i^{ca} = G_{cur}[\left(\frac{y*}{y}\right)\varepsilon_{U,y}]\varepsilon^{Gcur,U}$ where $\varepsilon_{U,y}$ and $\varepsilon^{Gcur,U}$ are elasticities to expenditure with regards to the base and the output gap.

However, before any meaningful exercise to assess a government's policy stance, the potential output; i.e. the performance of the economy at full employment must first be derived. Within econometric techniques, there are several smoothing methods used to decompose the trend and cyclical components of a time series data set among which includes; linear regression, band pass filter, structural VAR, production function approach and the Hodrick Prescott Filter. For simplicity purposes the Hodrick Prescott Filter commonly known as the HP Filter was used for this research. The HP filter essentially separates a time series y, into a trend T and a cyclical component C, such that y = T + C. The Hodrick Prescott filter can be written as follows;

$$\sum_{t=1}^{m} C_t^2 + \lambda \sum_{t=2}^{m-1}((T_{t+1} - T_t) - (T_t - T_{t-1}))2$$

Where m is the represents the number of samples and λ is the smoothing parameter. When using annual data a lambda of 100 is used, whereas a lambda of 1,600 is used for quarterly data sets. The programming problem is to minimize the objective over all T1… Tm. The first sum minimizes the difference between the time series and its trend component (which is its cyclical component). The second sum minimizes the second-order difference of the trend component (which is analogous to minimization of the second derivative of the trend component).

4.0 DATA ASSESSMENT AND RESULTS

DATA

The fiscal data series includes (VAT, excise taxes, custom duties, profit tax, social security contributions, tax revenues, current expenditures, interest payments, unemployment-related spending and social security outlays). Real, actual and potential GDP, revenue and expenditure data including interest expense and consumer price index are the major assessed variables. These are obtained from the Eastern Caribbean Central Bank and the World Bank for the period 1980 to 2013. The data span looks at varying episodes in economic activity in Saint Lucia with periods of booms during the agricultural era and the transition towards the service industry, particularly tourism. The latter period has been laden with a number of external shocks including but not limited to the loss of preferential treatment for bananas, natural disasters, and the more recent global economic recession. Economic growth over this extended period has been volatile and downward sloping as the average growth rate has moved from 3.6 percent over the assessed period to 1.6 percent in the last 10 years of the assessment.
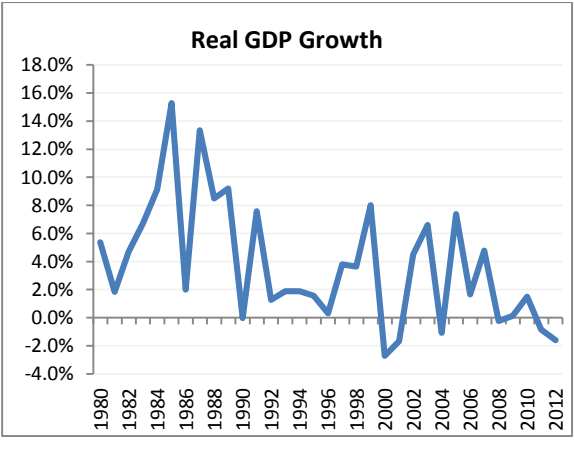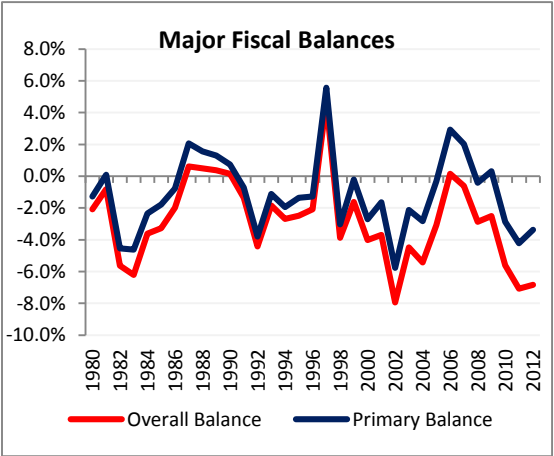
OUTPUT GAP

To estimate the output gap, the Hodrick – Prescott filter (Hodrick and Prescott, 1997) is used. The HP filter is simpler to implement in terms of shorter time series and narrower dataset requirement. The output gap[3] suggests that between 1980 to 1988, output was below potential resulting in levels of negative[4] output gap. This indicates underutilization of resources of land, labour and capital with ensuing increases in unemployment rates. Contrastingly, in the early to mid-1990 with the change in the structure of the economy to a more service oriented economy, positive output gap is estimated. However, with the global developments in the latter period and Saint Lucia's vulnerability to natural disasters oscillating gaps were observed over the remaining period from 1998 to 2012.

Figure 1: Saint Lucia - Real and potential GDP

Figure 2: Saint Lucia Output Gap
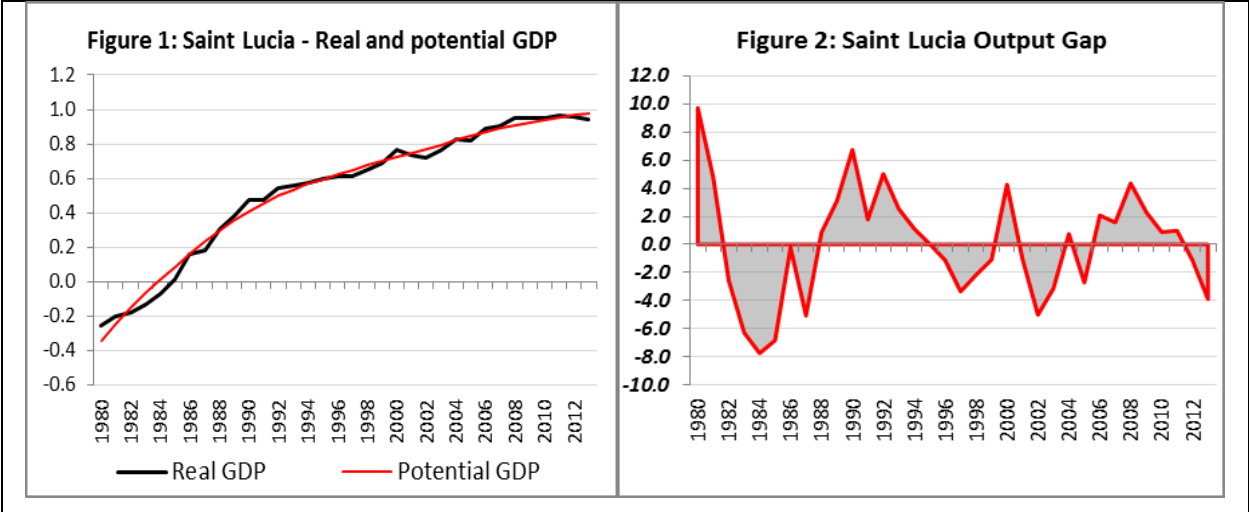
ELASTICITIES

The cyclically adjusted revenue and expenditure estimates were computed using elasticities of 1 and 0 respectively. Keith Kyle J. Hamlet (2013) and Andrew (1999) similarly found tax buoyancy above unitary for Saint Lucia with an alternative approach. Additionally, Hamlet (2013) using the divisia index method for the removal of the discretionary component and further using regression analysis estimated elasticity of 0.94 for indirect taxes. Therefore, given the close estimation of elasticities to that of the OECD countries and the IMF, unitary elasticities for revenue were then assumed.

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[3] Output gap is the difference between actual level of national output and the estimated level of potential output
[4] Downward pressure on inflation

However, an expenditure elasticity of 0 was adopted from the IMF considering the limited research undertaken for Saint Lucia or the Caribbean regions. The 0 expenditure elasticity assumes that most spending is not correlated to output gap.
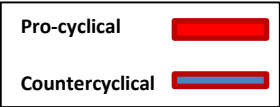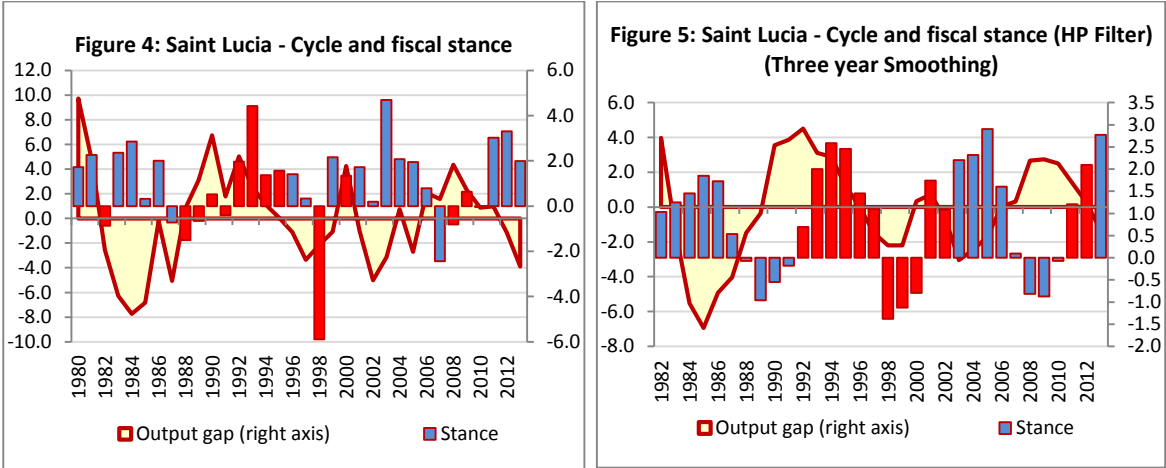
FISCAL POLICY AND THE CAB

There are three definitions of fiscal policy stance with regard to economic developments: pro-cyclical fiscal policy, countercyclical fiscal policy and neutral fiscal policy or a-cyclical. Pro-cyclical fiscal policies are policies which magnify economic fluctuations; these policies tend to work with the natural swings of the economy. For example during booms government spending tends to increase and spending cuts in a recession. Conversely, countercyclical fiscal policies are policies that go against the current economic cycle. These types of policies are known as automatic stabilizers and are intended to manage the effects of fluctuations in the economy. For example in a recession period countercyclical polices are necessary to encourage upswings in the economy. Fiscal neutral stance is a position taken by government that has no influence on aggregate demand (AD); basically government makes no attempt at reducing or increasing AD.

The data estimates shows that Saint Lucia has realized prolonged fiscal deficits; overall deficit over the observed period averaged of 2.7 percentage of GDP annually, with a primary deficit of 1.0 percentage of GDP. However, with the economy functioning away from the potential level of output particularly below potential or negative output gap suggest that significant gains could have been realized altering the fiscal balances of Saint Lucia.
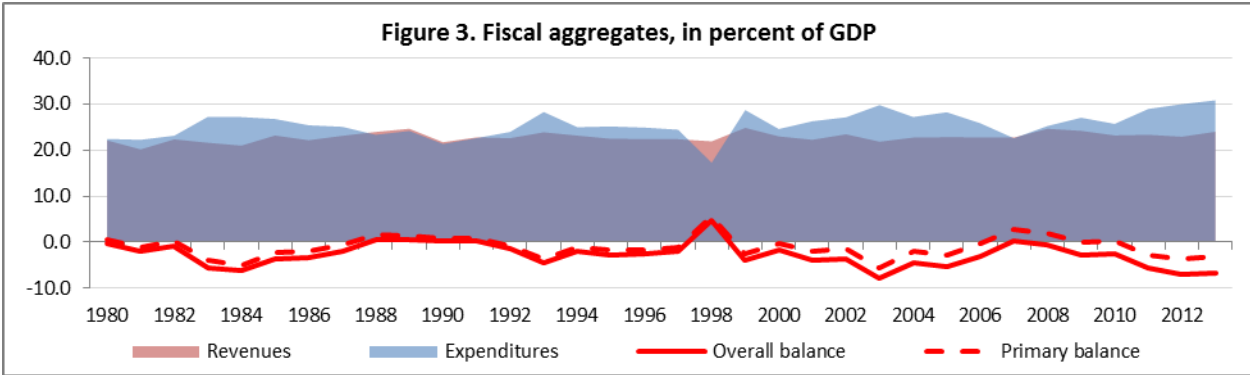
Figure 3. Fiscal aggregates, in percent of GDP

The cyclically-adjusted fiscal balance corrects for the effects of the business cycle and temporary fluctuations in revenue and expenditure and therefore, is a better indicator of the underlying fiscal position[5]. The cyclically adjusted balance which is applied to filter the impact of the cyclical movements (automatic stabilizers) and to assess the fiscal stance of economy shows that over the assessed periods fiscal policies were countercyclical during the early to mid-1980 to 1992. Otherwise it has been identified that government's fiscal stance have been largely pro-cyclical suggesting that governments in periods of booms were utilizing expansionary fiscal policies and utilizing contractionary fiscal policies in recession periods. A three year smoothing of the fiscal stance (figure 5) supports the pro-cyclicality in government's policies in the specified periods. Furthermore, figure 5 and 4 points out that expansionary fiscal policies were constantly utilized, as captured in the bars above 0 line.
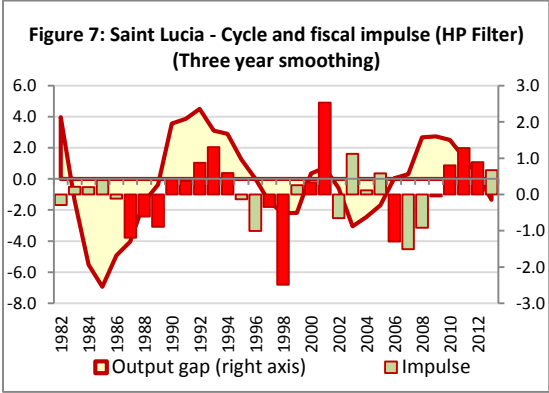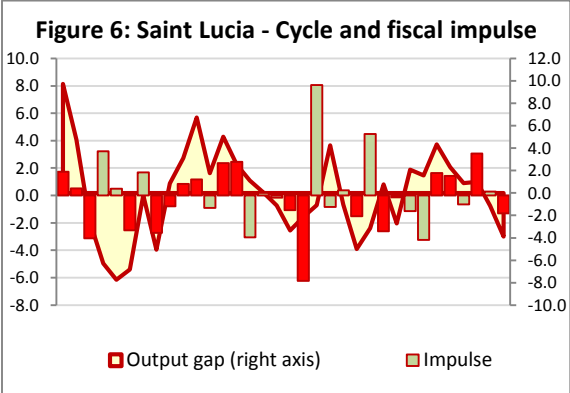

Figure 4: Saint Lucia - Cycle and fiscal stance

Figure 5: Saint Lucia - Cycle and fiscal stance (HP Filter) (Three year Smoothing)

Pro-cyclical

Countercyclical

FISCAL IMPULUSE

The fiscal impulse which measures the fiscal stance overtime; suggests no clear policy direction by government as the impulse shows both expansionary and contractionary policy despite the economic environment or business cycle. This indicates the volatility towards the later periods both in policy and business cycle. Moreover, a three year smoothing of the fiscal impulse data indicates more pro-cyclicality overtime specifically in periods of 1986-1995 (see figure 7). Appendix 1 which assesses the fiscal impulse relative to the output gap based on the economic cycles in Saint Lucia observes more

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[5] This is relative to using the Overall Balance

periods of pro-cyclicality. This is further supported with further assessment of the fiscal impulse as detailed in appendix 2. According to economic theory pro-cyclicality exaggerates macro-economic instability/volatility as the implemented polices does not provide the policies necessary to alter the current economic/business cycle. Pro-cyclicality exacerbates the swings in the economic cycle and cause dead weight losses. The correlation between government spending and GDP also points to government spending during economic good times (see figure 8).

Figure 6: Saint Lucia - Cycle and fiscal impulse

Figure 7: Saint Lucia - Cycle and fiscal impulse (HP Filter) (Three year smoothing)

Alberto Alesani (2005) in an assessment of the reasons for pro-cyclicality of fiscal policies suggests that pro-cyclicality and myopic fiscal policies stems from a political agency problem. In periods when the economy is performing voters, because of lack of trust of government with resources, demand reduction in taxes or an increase in productive spending or transfers. This is due to the fear of wastage of resources. Furthermore, Alesani (2005) stated that these voters also demand a level of debt that forces government to pay higher interest rate which prevents the accumulation of reserves. These conclusions are based on the assumption that voters have lack of information. Other researchers as also support that the pro-cyclicality is based on optimal behavior under political constraints.

Borrowing constraints has also been postulated as a reason for pro-cyclicality of fiscal policies particularly during periods of a downturn. Therefore government would cut spending and increase taxes contrary to the general economy demands. Furthermore, the lack of fiscal space, the size of the automatic stabilizers and the growth in the economy are also factors influencing the implementation of pro-cyclicality fiscal policies.

5.0   CONCLUSIONS AND RECOMMENDATIONS

Overall the fiscal stance and the fiscal impulse indicate that over the accessed periods Saint Lucia has implemented pro-cyclical policies. Significant periods of recessions with expansionary fiscal policies were observed. Pro-cyclicality remains one of the major structural flaws of the Saint Lucian economy. However, its implementation is largely reliant on key factors as the level of its debt and interest payments, the current tax levels and the extent of the discretionary and non-discretionary expenditures. Based on Saint Lucia dynamics it can be inferred that both the agency problem and the financing constraints/ lack of fiscal space contributes to the implementation of pro-cyclical policies. These inherent macroeconomic vulnerabilities further expounds on the level of interference by government.

Economic theory states that countercyclical policies are optimal for economies to realize growth and to alter the current business cycles of an economy. That is, in periods of recession it is required that government increase spending and reduce taxes to boost economic activity. Contrastingly periods of booms requires savings by the government, reduction in the tax rates and a cut in government spending. Advocates of Keynesian economics supports the use of counter-cyclical policies and similarly the use of progressive tax rates as these tend to increase during booms and vice versa; basically progressive tax rates has an "automatic" response to business cycles. However the new classical macroeconomics holds that counter-cyclical policies are counterproductive as it creates destabilization of the economy.

The implementation and the estimated results of the counter-cyclical policies are nonetheless reliant on certain economic situations[6]. These are further influenced by the size of the automatic stabilizer. Countries within the Caribbean region have statistically significant but have very small automatic stabilizers, (Samuel 2008). Given this, countries in the region and Saint Lucia would have to rely heavily on discretionary fiscal policies but significant consideration would have to be given to the available fiscal space and the fixed exchange rate regime. He posited further from previous researchers for

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[6] The level of debt, the current tax system, the interest payments, the portion of non-discretionary and discretionary expenditure

greater use of the automatic stabilizers to reduce macroeconomic fluctuations and to ensure over the medium term that the fiscal position is balanced or surplus. These surpluses would allow governments to create the enabling environment for growth/ adjustment of the cycle to businesses.

Samuel (2008) noted that common to the region is the use of pro-cyclical fiscal policies. He further cited the importance of well-designed **fiscal rules** as a basis for gaining reductions in the level of pro-cyclicality. These fiscal rules, although criticized for being endogenous, allows for creative accounting, and for less ratcheting of expenditure and reduce deficit over the business cycle. Fiscal rules, according to the IMF for proper implementation requires for independent monitoring agencies, having rules specific to countries, must be stable, flexible and having appropriate **sanctions.**

Jeffrey Frankel, Carlos A. Vegh, Guillermo (2011) in assessing fiscal policy in developing countries identified strong institutions as a major influence to cyclicality given that a country's fiscal policy is inversely correlated to the quality of a country's institution[7]. Paolo Manasse (2006) also supports the need for **strong institutions** despite the varying effects with economic cycle.

Having **larger automatic stabilizer** and increasing government's **fiscal space** by reducing expenditure or growth in the economy are also recommendations to implement counter-cyclical policies. **Fiscal space allows for counter cyclical policies which allow for smoother and higher growth outcomes.**

Therefore, given the nature and the reasons for pro-cyclicality, it is proposed that the Saint Lucia government enhance its institutions, adhere to the fiscal rules[8] and to increase its fiscal space by improving its balances and encouraging significant growth outcomes. However, there is a need to deal with the macroeconomic issues in order to create additional fiscal space.

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[7]Law and order, bureaucracy, quality, corruption and other risks investment
[8] For fiscal rules to be effective it is recommended there a separate monitoring unit to ensure consistency of data. Also, fiscal rules should be simple, stable, and is country specific to allow for its effectiveness.

6.0   <u>REFERENCE</u>

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7.0   APPENDIX

1980 1982 1984 1986 1988 1990 1992 1994 1996 1998 2000 2002 2004 2006 2008 2010 2012
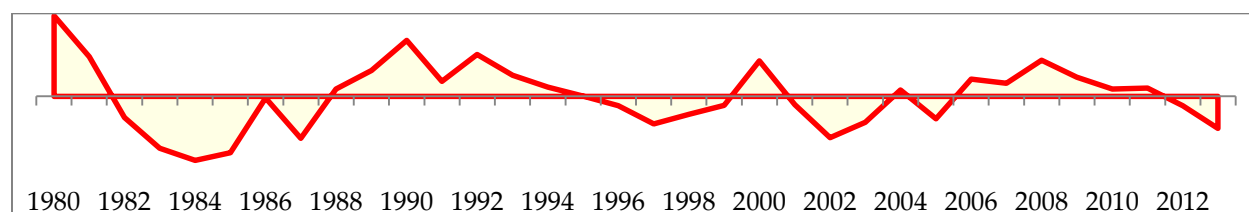
Appendix 1. Impulse Results			
	Impulse	**Output gap**	**Impulse Results**
1980-1981	1.10	7.23	Pro-Cyclical
1982-1987	-0.48	**-4.78**	Pro-Cyclical
1988-1995	0.28	2.65	Pro-Cyclical
1996-2003	0.39	**-1.58**	Counter-Cyclical
2004-2005	-1.38	**-0.98**	Pro-Cyclical
2006-2011	0.17	2.03	Pro-Cyclical
2012-2013	-0.49	**-2.52**	Pro-Cyclical

Appendix 2. Impulse Results			
	Impulse	**Output Gap**	**Impulse Results**
1980	1.62	9.71	Pro-Cyclical
1981	0.58	4.75	Pro-Cyclical
1982	-3.05	-2.55	Pro-Cyclical
1983	3.27	-6.27	Counter-Cyclical
1984	0.51	-7.73	Counter-Cyclical
1985	-2.54	-6.82	Pro-Cyclical
1986	1.61	-0.22	Counter-Cyclical
1987	-2.67	-5.06	Pro-Cyclical
1988	-0.85	0.85	Counter-Cyclical
1989	0.81	3.1	Pro-Cyclical
1990	1.14	6.74	Pro-Cyclical
1991	-0.86	1.78	Counter-Cyclical
1992	2.32	5.02	Pro-Cyclical
1993	2.49	2.53	Pro-Cyclical
1994	-3.04	1.12	Counter-Cyclical
1995	0.21	0.04	Pro-Cyclical
1996	-0.15	-1.12	Pro-Cyclical
1997	-1.05	-3.34	Pro-Cyclical
1998	-6.23	-2.16	Pro-Cyclical
1999	8.04	-1.08	Counter-Cyclical

2000	-0.89	4.26	Counter-Cyclical
2001	0.45	-1.02	Counter-Cyclical
2002	-1.48	-5.00	Pro-Cyclical
2003	4.47	-3.13	Counter-Cyclical
2004	-2.66	0.75	Counter-Cyclical
2005	-0.09	-2.71	Pro-Cyclical
2006	-1.21	2.08	Counter-Cyclical
2007	-3.23	1.56	Counter-Cyclical
2008	1.61	4.35	Pro-Cyclical
2009	1.46	2.31	Pro-Cyclical
2010	-0.64	0.89	Counter-Cyclical
2011	3.05	0.98	Pro-Cyclical
2012	0.31	-1.14	Counter-Cyclical
2013	-1.28	-3.89	Pro-Cyclical