CENTRALE BANK VAN SURINAME

Government Expenditure in Suriname

A Stimulus or Impediment to Growth?

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Abstract

This paper examines the relationship between government expenditures and economic growth in Suriname from 1971 to 2011. According to the Keynesian theory it is the government's responsibility to stimulate or dampen economic growth within the country by using fiscal policy. For the last decade Suriname has experienced sustained economic growth. Some schools of economic thought argue that government expenditure has a positive effect in prolonging and sustaining growth while others disagree. A Dynamic Ordinary Least Square method is used to examine the effects of the different components of government expenditure on economic growth. Capital expenditure and subsidies & transfer are found to stimulate growth, while wages & salaries and goods & services impede growth in the long run.

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1. Introduction

The recent financial crisis and government rescue operations has put fiscal policy, defined as government expenditure, taxation and borrowing, at the centre of debate again. The financial crisis almost brought the world economy to the brink of implosion which was prevented by prompt government bailout of the financial sectors. Beside this, government in developed and developing countries also embarked on stimulus programs to revive economic growth and employment. These government actions were in line with the thinking of Keynes who, back in 1936 considered fiscal policy as the sole tools left for governments to address the economic depression of that time. The justification for these expenditure hikes is that spending spurs economic activity which stimulates growth. Therefore, government spending is viewed as a tool to initiate economic growth. When analyzing the government expenditures in Suriname over time, there is a bias towards current expenditures, of which wages and salaries capture the bulk. On the other hand, capital expenditures comprises on average only 5% of Gross Domestic Product (GDP).

There are different views with regard to the impact of government expenditures on economic growth. Some studies such as Aschauer (1988), Easterly and Rebelo (1993), Roache (2007) and Butkiewics and Yanikkaya (2011) explained that government expenditures significantly boost economic growth, while others, such as Sevitenyi (2012), found no significant impact.

The proclaimed impact of government expenditures on economic growth in Suriname, leads to formulating the following central question: 'What is the impact of the different components of government expenditures on economic growth in Suriname?' In order to answer this central question we employed a growth model using government expenditure categories and other determinants of economic growth. Data from 1971 to 2011 is analyzed using econometric techniques.

The purpose of this paper is to show how the different components of government expenditures have affected growth in the past and which of these components need to be re-evaluated to improve their effect on economic growth. Theory and empirical research suggests that there can also be a reverse relationship between economic growth and government expenditures; the well-known Wagner's Law. However, this reverse effect is not examined in this paper. This study aims at providing policy makers with insights which could lead to improved decision-making with respect to expenditure-related policies. The current study adds value to empirical literature since, as far as it can be ascertained, such a study has never been undertaken before for Suriname.

The rest of the paper is structured as follows: section 2 provides an overview of economic growth and the developments in government expenditures in Suriname. Section 3 elaborates on the debates between proponents and opponents of government expenditures as a stimulus for growth and reviews some empirical literature with regard to government expenditures and growth. Next, the model specification, methodology and data-analysis are presented, while section 5 discusses the empirical findings of this study. Finally, in section 6 some conclusions are offered and policy recommendations discussed.

2. Government Policy and Economic Growth in Suriname

Suriname has a history of high government involvement within the economy. This is reflected through, the high level of total government expenditures in GDP which is on average 33%[1]. A second indication is the large number of people (40% of total employment (Centrale Bank van Suriname, 2013)) employed by the government with respect to total employment which reflect the underdevelopment of the domestic private sector and its inability to generate enough employment. The rentier – patrimonial system that emerged after the Second World War due to sizeable government revenue from the bauxite sector explain part of the high level of employment with the government. Third, many state-owned companies are fully controlled by the government while the government is major shareholder in other enterprises. These companies operated in various sectors and were setup by the government to stimulate the production sector. They were subsidized, together with utility services (water, electricity and telecommunication[2]), fuel (until 2005), transportation, health and education. A few state-owned companies continue to operate successfully (for example the oil company "Staatsolie" and the telecom company "Telesur") but many have been less successful (for example Para Industries, Mariënburg Sugar Cane Factory, Victoria Palm Oil Company). Discussing government policy against the background of economic growth, the trends in real GDP reveal four distinguish periods (Figure 1).

Period 1: 1971 - 1975

This period is characterized by a slowdown in growth due to decrease in both government and the private sector investments. The government had difficulties with the implementation of the second five year plan (1972-1976) which focused primarily on productive investments, while the private sector did not react adequately to infrastructural facilities created by the government in the previous period. Instead, both government and private consumption increased at a much faster pace (Centrale Bank of Suriname, 1982).

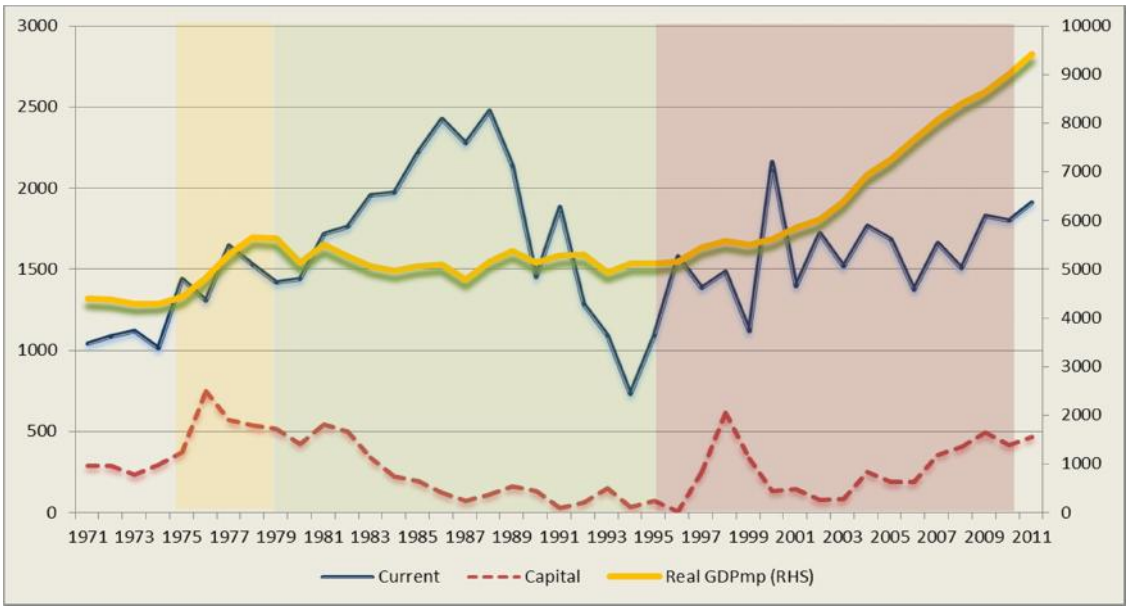
[1] Suriname has one of the highest when compared to other Latin-American and Caribbean countries ((Martin, 2001)

[2] The telecom-market was fully liberated since 2005

Period 2: 1976 - 1979

In the second period, a remarkable increase in real GDP occurred. Besides political independence (1975), development and innovation dominated this time frame. Large investments in infrastructural and productive projects were carried out within a framework of new arrangements with pre-colonizer The Netherlands (Centrale Bank of Suriname, 1982).

Figure 1: Real GDP and Government Expenditures in mln US $



Source: (Centrale Bank van Suriname, 2012), (Schaaijk van, 1991)

Period 3: 1980 - 1996

The first half of the third period shows a decline in growth which was turned into stagnation in the second half. The eighties and early nineties were characterized by severe macroeconomic instability that can be attributed to external and internal developments. First, the external factors were, among others, declining international prices for Suriname's main export products bauxite and alumina and the suspension of development aid from the end of 1982 onwards. These events resulted in a sharp decline in government revenues since the bauxite sector and development aid, were the main sources of government's income. Secondly, the governments' policies as a response to the external situation were inadequate. Instead of fiscal consolidation, fiscal policy became expansionary with deficits financed mainly through monetization (Centrale Bank of Suriname, 1986).

As a result of the above, an environment of macroeconomic imbalances was created. Exchange rate and prices for consumption and capital goods became misaligned the economy entered a vicious circle were many companies, private and state owned, were

closed because of the economic situation. This in turn led to declining government revenues causing the economy to further deteriorate. Unrest in the interior further aggravated the situation because many companies operating in the warzone were forced to shut down.

During this time period, infrastructure did not get much attention. Capital expenditures on infrastructure declined steadily from almost 10% of GDP to only 0.15% leading to deferred maintenance of infrastructure. Before 1983 these expenditures were mainly financed through the Dutch development aid. This aid was periodically halted until 1989 when development funds became available again and investments could be continued, though on a very low level (Centrale Bank of Suriname, 1986). Between 1983 and 1989 capital expenditures were financed through credit lines, European Development Fund, advances from the Central Bank of Suriname to the government and depletion of the international reserve (Centrale Bank van Suriname, 1990).

To bring a turnaround in this challenging economic situation the government of Suriname carried out a Structural Adjustment Program (1993-1996). This program included measures such as cutting government spending and taking several measures to increase government revenues.

Period 4: 1997 -2011

The last period, 1997-2011, shows a steep increase in real GDP. During the first half of the fourth period government policy focused primarily on the promotion of economic growth through stimulation of the production sector and improvement and maintenance of the infrastructure which was considered an important precondition for achieving economic growth. During this time capital expenditures were on average much higher than in the second period (Centrale Bank van Suriname, 2006). Some of the road rehabilitation projects were temporarily halted in 2000, but reactivated in 2003. After this period economic growth was mainly driven by developments within the mining sector especially the favorable international prices for gold and crude oil.

The evidence presented above illustrates the very active role that the government has in the economy, with the predicate of policy makers to foster sustainable economic growth and development. The significant government involvement in the economic process created two serious deficiencies. The first was aptly described by the Inter-American Development Bank (IADB) in their report on Governance in Suriname. It stated that the main cause of the *"government's poor performance in core tasks and the high cost, have been the overambitious role which was assigned to the government"* upon independence (Martin, 2001, p. 39). Secondly, the Surinamese government has a history of weak budgetary control. These two deficiencies have led to inefficient allocation and use of resources which in turn have led to macro-economic imbalances such as, fiscal and current account deficits and high inflation (Martin, 2001), (Fritz-Krockow, et al., 2009), (Caram, 2007). As a result of the aforementioned, government spending has been

mainly on consumption related activities (high current expenditures) while public investments have, except for the two periods 1976-1977 and 1998, averaged to only 5% of GDP (Figure 2).

Figure 2: Total Expenditures in mln US $

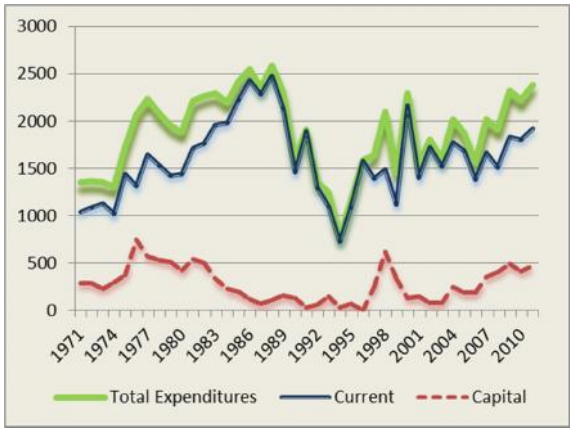
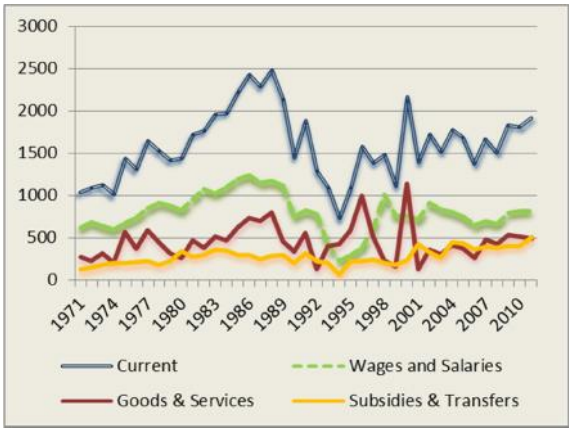


Figure 3: Current Expenditures in mln US $



Source: (Centrale Bank van Suriname, 2012), (Schaaijk van, 1991)

When current expenditures are further disaggregated into wages & salaries, goods & services and subsidies & transfers it is apparent that wages & salaries have the highest correlation with current expenditures (Figure 3). Based on this it can be assumed that changes in total expenditure are strongly influenced by changes in wages & salaries. Goods & services, the second big expenditure item of the government can be categorized as operational spending and as such moves along with changes in the size of the government.

3. Literature Review

3.1 Theoretical Perspective

Does government expenditure stimulate economic growth? In an attempt to answer this question it is important to know what to expect. Therefore, in this section the focus will be on the effects of government expenditure on economic growth. Our theoretical investigation shows that there has to be a positive causal relationship from total government expenditure and its subcategories towards economic growth in order to state that government expenditure stimulates economic growth.

That government expenditure could have a positive effect on economic growth is explained by both the Keynesian and Classical theory. However, the Classical school has other arguments to state that there could be a negative relation between these two

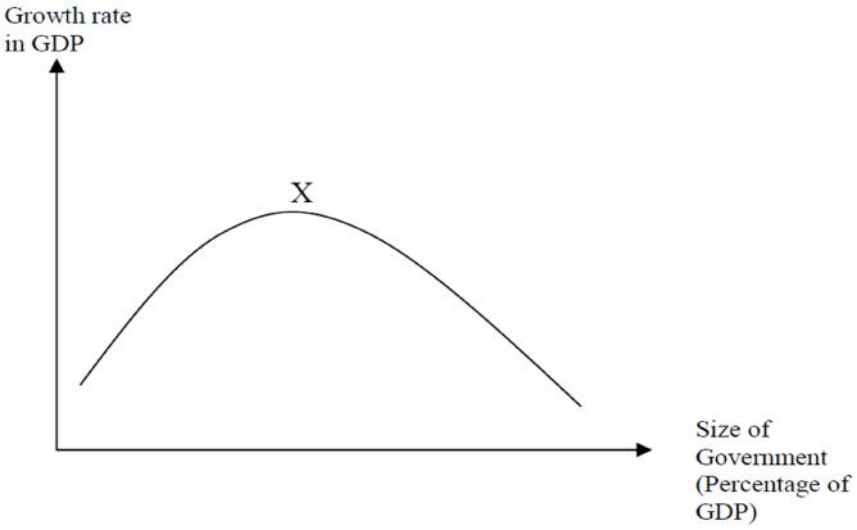
aggregates as well. The negative relationship is also supported by the deficits hawks[3] (Afonso, Ebert, Schuknecht, & Thöne, 2005).

The Keynesian theory argues that an increase in either total government expenditure or a subcategory (capital, current) can raise employment, profitability of companies and private investment and thus effect growth in a positive manner. These government expenditures raise aggregate demand, depending on the size and effectiveness of the expenditure multipliers. Apart from the total government expenditure the capital expenditure on itself could have additional effect on economic growth as well. Swaby (2007) indicates that public investment in infrastructure development may provide an incentive for further investment by the private sector.

Because of these effects, the Keynesian school advocates counter-cyclical fiscal policy which argues that in times of recession or depression the government should increase its expenditure, while it should decrease expenditure when economies recover or flourish to avoid inflationary pressures coming from too much economic growth (overheating) (Afonso, Ebert, Schuknecht, & Thöne, 2005).

The Classical school acknowledges the possibility of a positive relationship whereby government expenditures induce economic growth. This school argues, that the size of the government will determine whether an increase in its expenditures will be harmful or not.

Figure 4: The Rahn Curve



Source: (Sjöberg, 2003)

[3] The main view of this school is that governments should keep budgets under control.

With a Rahn Curve it can be illustrated that from an almost non-existent government up to a certain size (depicted as an optimal point X in Figure 4), a marginal increase in government expenditure will generate economic growth. The school argues that the benefits of services provided by the government would outweigh the cost bore by the economy to sustain those government actions (Mitchell, 2005).

Unlike prior arguments indicated in the previous section, classical economists postulate that government expenditures negatively impact on economic growth because in most cases government size exceed the optimal point X (Figure 4). They indicate that after point 'X' every increase in government expenditure will lead to a loss of economic growth. This loss would attribute to the facts that governments could directly start producing goods that the private sector should produce. This form of (physical) crowding out can lead to a loss of efficiency and productivity as the classics assume that the private could produce more efficiently than the government (Khan & Kumar, 1997).

Ultimately the Classical school suggests that the government should be assigned an indirect role in promoting growth. Their tasks should primarily consist of efficiently adopting measures under the protective functions[4] and providing a limited set of collective goods [(Afonso, Ebert, Schuknecht, & Thöne, 2005); (Sjöberg, 2003)]. Classical economists have a long-term perspective on explaining macroeconomic issues. and they view short-term macroeconomic imbalances as temporary issues which will be cleared by market mechanism (Vitez & Media, 2013).

In line with the classical economists, the so called "Deficit Hawks" argue that every increase in government expenditures that results into a deficit (or the widening thereof) will negatively impact on growth in the long run. If increased deficits are funded by financial markets, interest rates will rise and thus lower private investments, therefore negatively affecting growth (Khan & Kumar, 1997), (Mitchell, 2005).

3.2 Empirical Review

The relationship between government expenditures and macroeconomic growth has for long been subject to investigation. Some studies investigate the impact of public expenditures on economic growth through different sectorial channels such as expenditures on defence, education, health and infrastructure, while other research highlights the effect through aggregated public current and capital expenditures.

Analysing annual data of the United States of America using Ordinary Least Squares estimation (OLS), an early study of Aschauer (1988) indicates that public investments as in infrastructure such as roads, water systems and communication infrastructure lead to increased private sector output and economic growth. Another significant

[4] The authors describe these functions as the rule of law and private property rights (Sjöberg, 2003).

finding is that education is highly correlated with macroeconomic growth Easterly & Rebelo (1993).

More recent studies support the view that government expenditures are growth enhancing. In panel estimation of 30 developing countries, Bose, Haque and Osborn (2007) state that government capital expenditure in especially education stimulates economic growth. Therefore, governments should prioritize capital expenditures above current expenditures and could even switch expenditures from current to capital expenditures to achieve the optimal impact on growth. On the other hand, the authors warn that governments should not infinitely increase capital expenditures as government deficits seem to impede economic growth. Contrary to Aschauer (1988) and Easterly and Rebelo (1993), this study finds no clear impact of infrastructural investments on economic growth.

Chamorro-Narvaez (2010) examines the effects of government expenditures on growth of low and middle income countries in the period 1975 to 2000. A Generalized Method of Moments (GMM) framework indicates that government spending on education, communications and transport boosts economic growth. The authors highlight the importance of decomposing government expenditures to examine the impact of its constituent parts on growth. Sevitenyi (2012) uses a Johansen co-integration approach and Toda-Yamamoto Granger Causality tests to examine the impact of government expenditures on growth in Nigeria. Although no significant long-run impact is determined between variables of interest, government capital expenditures are found to Granger cause macroeconomic growth. Ahmad and Wajid (2013) investigate the effect of public expenditure on macroeconomic growth in Pakistan, using an Autoregressive Distributive Lag (ARDL) model. The results indicate that public capital expenditures have a significant and positive effect on growth in the long run, while current expenditures do not affect growth. The authors suggest that government investments should be biased towards human capital and infrastructure which enhances private sector productivity. In return, this will lead to higher economic output.

More papers such as Belgrave and Craigwell (1995) for Barbados, Roache (2007) for the Eastern Caribbean Currency Union, Swaby (2007) for Jamaica, Koeda and Kradamenko (2008) for Azerbaijan, Joharji and Starr (2010) for Saudi Arabia and Butkiewics and Yanikkaya (2011) in a panel study also acknowledge the encouraging effect of especially public capital expenditures on macroeconomic growth. However, there is no consensus on the effects of current expenditures on macroeconomic growth.

4. Model Specification

Previous studies highlight the channels through which the different components of government expenditure may impact on economic growth. It also suggests that the various components of government expenditure can have different effects on growth. Our study disaggregates government expenditures. In addition, there are other sources of growth apart from government expenditure which are accounted for. In this regard, several papers provide an overview of other drivers of growth for example, see (Greenidge & Milner, 2007); (Greenidge & Drakes, 2009) (Nallari & Griffith, 2011) (Loayza, Fajnzylber, & Calderón, 2004)). Key variables suggested by these studies include investments, human capital (education), and population growth. Other variables relevant for Suriname are inflation, trade balance/openness and money supply, since these pertain to small developing economies.

All variables except for inflation are expected to have a positive effect on growth. According to the Keynesian macroeconomic model, increases in investment can have a positive effect on growth through the multiplier. Investment Loans to the private sector and capital formation may also be used as a proxy for this indicator. The World Bank (2011) assumes that about 50% of growth variation can be explained by physical, human and research & development variations. Evidence for Suriname shows that human capital has a positive effect on growth through the enhancement of labor productivity (Ooft & Eckhorst, 2013). School attainment enhances cognitive skills of individuals. In the long run, this will lead to an improvement in productivity and an increase in economic growth (Hanushek, 2013).

Palumbo (2010) shows that population growth can have either a negative or positive effect on economic growth. The negative relationship can be explained through economic growth together with the availability of limited resources. And the positive relationship can be explained trough faster technological development which is based on the increasing needs of the growing population.

Trade balance, total trade and openness are common trade variables. Growth models often include these variables since an increase in especially exports can increase national income (López, 2005). According to the Keynesian theory real money supply may have a positive relation to growth as an increase in this variable leads to more purchasing power (Mankiw, 2003). Nallari & Griffith (2011) stipulates that in the short run inflation seems to stimulate economic growth while in the long run high rates of inflation have an impeding effect on growth. They also explain that under certain conditions foreign direct investments can have a positive effect on economic growth.

However, the shortage of data limited the use of potential variables such as investments. Through preliminary data-analysis the variables such as investment loans to the private

sector, foreign direct investments, inflation and real money supply are not significant in explaining growth. The trade balance and school life expectancy are significant for explaining growth together with the government-expenditures categories.

The measure for growth is the Gross Domestic Product (GDP). Government expenditures are disaggregated in capital expenditures (CAPEX), wages and salaries paid to civil servants (WS), goods and services (GS) and subsidies and transfers (ST). Interest payments are excluded from the analysis as theory makes no relation between this budget item and growth.

Capital expenditures have generally been expenditures on infrastructural projects in Suriname. Infrastructure is assumed to facilitate economic activity and is therefore expected to have a positive effect on growth. For Subsidies & Transfers it is difficult to indicate what the expected sign will be. Some experts indicate that subsidies are primarily used for the operational costs of state-owned companies. This would indicate a negative relationship between subsidies and GDP. As Suriname has a small, open and commodity-exporting economy, the trade balance is included to control for the effect of activities abroad. Since Suriname has noted positive trade balances in recent years, this indicator is expected to boost GDP. Based on the size of Wages & Salaries and Goods & Services, it is not expected for these items to positively impact on economic growth. The variable school life expectancy is also selected as a human capital variable in the model and is expected to stimulate GDP by enhancing labor productivity.

5. Data, Econometric Procedure and Empirical Results

In this paper, annual time series are used for the period 1971 to 2011. All data, except for the school life expectancy, are measured in real Surinamese Dollars (SRD). All variables are transformed into natural logs (ln), except for the trade balance (SRD billions), because of the existence of negative values. Descriptive statistics of relevant variables are presented in appendix 1. Trade balance data and government data (1982-2011) are obtained from the Statistical Compendium of the Central Bank of Suriname (2012). Government data for the period 1971-1982 are collected from the Micro-Macro dataset of Marein van Schaaijk (1991). School life expectancy is measured in years and data for this variable is obtained from the Unesco Institute for Statistics (2013). Missing data-points are interpolated[5]. Preliminary analysis[6] shows that Gross Domestic Product and Goods & Services are not normally distributed.

A necessary step in investigating economic time series is to test for unit roots. Several types of unit root tests are applied, namely the Augmented Dickey-Fuller (ADF) test (1979), the Phillips-Perron (PP) test (1988) and the Kwiatkowski, Phillips, Schmidt and

[5] The authors used the TRAMO/SEATS feature from E-Views 7.2.

Schin (KPSS) test (1992). The results of the unit root tests indicate that the variables, except the Trade Balance, are not stationary in level. Thus, we need to consider a cointegration framework for the analysis. The results of the unit root tests are presented in appendix 2.

There are various approaches to cointegration analysis, ranging from single equation techniques to multivariate techniques. We opted for the DOLS estimation developed by Stock and Watson (1993) for the following reasons. Based on Monte Carlo simulations, this method produces more robust estimations in small samples when compared to other estimation methods. Moreover, the DOLS obtains efficient estimators in the presence of cointegration. It combines I(0) and I(1) variables and applies a two-step method where the long run is estimated including leads and lags of all I(1) variables. The leads are added to correct for endogeneity while the lags correct for serial correlation (Stock & Watson, 1993).

The long-run is estimated adding 1 lead and 1 lag since this research deals with annual data. The long-run model is reduced to a more parsimonious model by applying a stepwise general-to-specific reduction approach. The residuals of the long-run are tested for unit roots and are stationary. Therefore, this confirms the presence of cointegration in the model. The residuals are also tested for normality, serial correlation and heteroscedasticity.

After calculating the long run, the short-run model is also estimated with two lags of differenced variables. The error-correction term is created using the residuals of the long-run model and is negative and significant confirming cointegration. The short-run model is reduced using a general-to-specific approach to arrive at a parsimonious model and residual diagnostics are also carried out.

Both, the long-run and short-run model show good results and pass all diagnostic tests. The residuals do not suffer from non-normality, heteroscedasticity and serial correlation and the model is correctly specified. The results of the Ramsey RESET test which tests for correct model specification are presented in appendix 3.

The long-run estimation results are reported in Box 1. According to the long-run equation CAPEX has a significant and positive relationship with GDP. However a 1% increase in CAPEX contributes to a 0.04% increase in GDP, which is the lowest multiplier-effect in this model. This low effect can be attributed to two main factors; first, CAPEX throughout history has on average been around 5% of GDP. Secondly, the effectiveness of the CAPEX throughout history can be questioned. As the theory suggests CAPEX can boost private investment which lead to growth. This has been evident (e.g. building of bridges and roads) for Suriname. But some investments might have led to crowding out of private investments (e.g. the founding of state-owned production

companies – Para industries, Victoria Palm oil, Foundation of Mechanized Agriculture, etc.)

Box 1 SW DOLS Long-run Results[7]

GDP =	0.04*CAPEX	- 0.07*GS	- 0.31*WS	+ 0.59*ST	+ 0.08*TB	+ 0.49*SLE	+6.49
t-stat	2.10**	-1.92*	-6.82***	9.77***	2.29**	1.81*	7.60***

Model Specifications	***Residual analysis***
R-Squared: 0.88	Normality: JB=0.22 | p-value = 0.89
Adjusted R-Squared: 0.82	BPG-Hetero-test: p-value = 0.47
Standard Error of Regression: 0.08	BG-LM test: p-value = 0.08*
F-Statistic: 16.01***	Durbin-Watson-Statistic: 1.34
Observations: 38 after adjustments	

, ** and * denote 10%, 5% and 1% levels of significance*

WS in the long run appears to have a significant and strong negative relationship with growth. These findings seem to agree with several authors who discussed the case of Suriname (Martin, 2001), (Business and Strategy in Europe, 2009), (Fritz-Krockow, et al., 2009). These authors indicate that the size of the labor force influences the effect of WS on economic growth. A sudden increase in wages and salaries could boost aggregate demand and increase growth in the short run. However, in the long run the increased demand will increase imports of consumption goods which have an impeding effect on economic growth. Further, given its relatively large share in current expenditures, any increase serves to reduce capital expenditures, the portion that is growth enhancing, and therefore impede growth.

GS has a significant and negative relationship with GDP. Just like WS the size of GS has been questioned by scholars in the past (Martin, 2001). The size of GS could have contributed to the negative relationship in the long run. This could also be a result of increasing imports.

In the long run a 1% change in ST has a highly positive effect on GDP (0.58%) which differs from all studies done on government expenditure over the research period such as Martin (2001) and Fritz-Krockow et. al. (2009). These studies indicate that subsidies have primarily gone towards state-owned companies for operational costs such as wages and salaries. The arguments against these state owned companies are that they are poorly managed and they have an inadequate provision for maintenance (Martin, 2001), (Fritz-Krockow, et al., 2009). This would indicate a negative relationship between subsidies and GDP. However some of the subsidies went to lowering production costs such as subsidies on fuel, electricity and water. Another part of these

[7] JB: Jarque-Bera Statistic
BPG-Hetero: Breusch-Pagan-Godfrey test for Heteroscedasticity
BG-LM: Breusch-Godfrey Lagrange-Multiplier test for Serial Correlation

subsidies went to health and education and the agricultural sector. These enhancements in human capital (health and education) together with lowering of production cost increases productivity which leads to economic growth. To the extent that a significant portion went to individuals (pensions etc.) ST would also boost aggregate spending in the economy.

Considering the pros and cons, further analysis has to be made on these findings. TB and SLE in the long run have a significant and positive relationship with GDP. In both cases these indicators seem to confirm the results of other studies such as Nallari and Griffith (2011).

Box 2 SW DOLS Short-run Results[8]

D(GDP) =	0.31*D(GDP(-1))	+ 0.48*D(GDP(-2))	+ 0.02*D(CAPEX)	+ 0.03*D(GS(-1))	+ 0.08*D(WS)	- 0.07*D(WS(-1))
t-stat	1.89*	4.05***	1.81*	4.35***	3.19***	-3.66***
	+ 0.02*D(TB)	- 0.31*D(SLE(-1))	- 0.15*EC(-1)			
t-stat	2.51**	-2.34**	-2.88***			

Model Specifications	***Residual analysis***
R-Squared: 0.45	Normality: JB=1.06 | p-value = 0.58
Adjusted R-Squared: 0.30	BPG-Hetero-test: p-value = 0.42
Standard Error of Regression: 0.04	BG-LM test: p-value = 0.58
Observations: 38 after adjustments	Durbin-Watson-Statistic: 2.12

, ** and * denote 10%, 5% and 1% levels of significance*

The short-run estimation results are reported in Box 2. The error correction term in the short-run model is significant and negative (around 15%), meaning that a shock to the system in the short run will restore to long-run equilibrium within approximately 6 years and 9 months. The slow speed of adjustment could be attributed to shocks in variables (CAPEX, WS and GS) which will lead to shocks in other variables (TB) and vice versa.

Lagged changes in GDP have a positive relationship with the changes in GDP. A possible explanation is that an increase or a decline in growth is sustained over several periods. Furthermore, changes in the first lag of CAPEX affects D(GDP) positively and may signal a effect where an increase in CAPEX could create employment thus positively affecting GDP. Changes in the first lag of GS have a positive effect on changes in GDP because in the short run GS boosts aggregate demand. Changes in WS can trigger changes in GDP, meaning that increases in WS raise GDP in the short run. However, first-lag changes in WS negatively affect GDP. This impact sustained in the long run (see long-run results).

[8] JB: Jarque-Bera Statistic
BPG-Hetero: Breusch-Pagan-Godfrey test for Heteroscedasticity
BG-LM: Breusch-Godfrey Lagrange-Multiplier test for Serial Correlation

In the short run the TB positively affects GDP, the same as in the long run. Since Suriname is a small open commodity-exporting country, increments in net exports could have positive effects on growth. Contrary to TB, SLE in the short run negatively affects GDP. SLE, a proxy for human capital, has a positive effect in the long run as returns on human capital investments usually become manifest in the long run. The negative short run effects can be attributed to revenues that the country lacked during the school years of an individual and the start-up costs associated with extending the study (construction, labor costs).

6. Conclusions and Policy Recommendations

This study examined which components of government expenditures enhance long-run economic growth in Suriname. The DOLS results indicate that capital expenditures, subsidies and transfers have a positive and significant impact on growth on the long-run. However, the effects of capital expenditures are marginal (elasticity of 0.05), while subsidies and transfer expenditures have an elasticity of about 0.55. On the other hand, the components wages & salaries and goods & services impede economic growth in Suriname in the long run. These findings are in line with expectations. Furthermore, the other determinants of economic growth in Suriname, namely human capital and the trade balance are also found to significantly and positively affect growth. All government-expenditures categories have a positive effect on growth in the short run. This might give an indication to why governments in Suriname tend to raise its expenditures as a means to stimulate growth.

The effects of capital expenditures and subsidies & transfers seem to be in line with the Keynesian theory. On the other hand the negative effects of wages & salaries and goods & services are in accordance with the classical view. They argue that after the optimal size is reached any increase in government expenditures has a negative effect on growth. The outcomes of this investigation are also partially in line with empirical studies such as Swaby (2007), Koeda and Kradamenko (2008) and Butkiewics and Yanikkaya (2011).

Though the government seems to stimulate growth in the short run based on the results of this analysis, we recommend that the government of Suriname makes a shift from consumption towards investments. This can be accomplished by:

- Increasing capital expenditures to facilitate the private sector;
- Holding strain on expenditures on wages and salaries (civil service);
  The government could reinvest in the state-owned companies and privatize them with a clause that these companies are sold off with retrained civil servants.
- Reducing expenditures on goods and service.

Another recommendation is that the government determines efficient levels of spending in all the components. This may be accomplished by:

- Implementation of budgetary mechanisms such as the Medium Term Fiscal Framework;
- Procurements which are based on speed of execution, efficiency and effectiveness.

It is of future interest to examine what the optimal size of government should be for Suriname in order to determine the size of the civil service. We should also investigate whether economic growth causes government expenditures to increase (Wagner's Law). As subsidies and transfers have a substantial effect on growth in Suriname, it is also of great importance to further examine this outcome in future research.

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Appendices

1. Descriptive Statistics

	GDP	CAPEX	GS	ST	WS	SLE	TB
Mean	5,765.65	278.10	452.04	275.57	789.91	11.44	37.03
Median	5,293.42	249.94	425.87	266.89	786.46	11.56	-5.13
Maximum	9,427.00	750.69	1,136.24	517.27	1,235.23	13.02	1,395.53
Minimum	4,289.98	7.62	133.63	63.56	225.80	9.80	-913.34
Std. Dev.	1,326.86	187.20	208.80	99.97	232.26	0.73	486.45
Skewness	1.40	0.53	1.16	0.31	-0.22	-0.35	0.24
Kurtosis	3.96	2.39	4.89	2.56	3.08	3.05	3.16
Jarque-Bera	14.99	2.57	15.30	0.99	0.35	0.82	0.43
Probability	0.00	0.28	0.00	0.61	0.84	0.66	0.81
Observations	41	41	41	41	41	41	41

2. Unit Root Test Results

		ADF		PP		KPSS		UR with structural breaks	
		Level	**Δ**	**Level**	**Δ**	**Level**	**Δ**	**Level**	**BD**
GDP	Intercept	0.03	-2.43	1.00	-5.14***	0.63**	0.31		
	Trend & Intercept	-1.08	-4.08**	-0.57	-5.36***	0.16**	0.11		
CAPEX	Intercept	-3.07**	-8.18***	-3.00**	-14.54***	0.23	0.46*	-1.62	P 1996
	Trend & Intercept	-3.02	-8.11***	-2.95	-18.91***	0.18**	0.37***	-1.65	P 1996
GS	Intercept	-6.07***	-11.78***	-6.07***	-20.61***	0.12	0.50**	-1.84	S 1991
	Trend & Intercept	-6.00***	-11.63***	-6.00***	-21.34***	0.11	0.50***	-1.81	S 1991
ST	Intercept	-3.20**	-8.86***	-3.07**	-18.75***	0.43*	0.24	-1.00	P 1994
	Trend & Intercept	-3.76**	-8.73***	-3.69**	-18.31***	0.11	0.24***	-1.24	P 1994
WS	Intercept	-2.79*	-4.66***	-2.27	-4.48***	0.11	0.06	-2.65*	P 1993
	Trend & Intercept	-2.80	-4.59**	-2.30	-4.40***	0.08	0.06	-2.33	P 1993
SLE	Intercept	-2.48	-7.84***	-2.37	-10.13***	0.73**	0.12	-1.31	P 1981
	Trend & Intercept	-3.95**	-7.73***	-3.97**	-9.94***	0.12	0.12	-1.92	P 1981
TB	Intercept	-3.30**	-7.68***	-3.26**	-11.05**	0.28	0.50**		
	Trend & Intercept	-3.74**	-7.75***	-3.52*	-17.87***	0.09	0.33***		

ADF and PP display t-statistics; KPSS displays LM-statistics

UR with structural breaks were carried out in JMulti where "P" indicates a pulse and "S" indicates a shift

*, ** and *** denote results at 10%, 5% and 1% levels of significance

3. Stability Test Results

Long-run Estimation: Ramsey RESET test results

	Value	DF	Probability
T-statistic	1.20	24.00	0.24
F-statistic	1.45	(1, 24)	0.24
Likelihood ratio	2.22	1.00	0.14

Short-run Estimation: Ramsey RESET test results

	Value	DF	Probability
T-statistic	0.01	28.00	0.99
F-statistic	0.00	(1, 28)	0.99
Likelihood ratio	0.00	1.00	0.99