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Impact of Capital Budget Implementation on Economic Growth in Nigeria

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ABSTRACT

The study examined the impact of capital budget expenditure implementation on economic growth in Nigeria. Specifically the study assessed the impact of implementation of capital expenditure on administration, economic services, socio-community services on the growth of Nigerian economy. Secondary data used in the study were collated from Central Bank of Nigeria (CBN) statistical bulletins, and analyzed with the use of Augmented Dickey-Fuller unit root test, co-integration test and error correction model (ECM) analysis. The long run normalized estimation reported coefficient values of -387,2292, 69.05, 184.17 for capital expenditure on administration, economic services and socio-community services respectively, while the short run parsimonious ECM estimation reported coefficient estimates and probability value of 27.20(p=0.11), -27.82(p=0.001), -17.23(p=0.49) respectively. Thus, it was concluded that capital expenditure implementation is germane in maintaining and sustaining economic growth in Nigeria. Hence, it was recommended that government should ensure adequate implementation of capital expenditure in the country especially in areas of economic and socio-community services and also overhaul ministries, government agencies and parastatals to curb and curtail loopholes impeding effective and efficient implementation of capital budget in the country.

Keywords: Capital budget, Budget implementation, Economic growth, Capital expenditure, Socio-community services, Augmented Dickey-Fuller unit root test

INTRODUCTION

Budget is an important instrument of governance in any modern state. It exercises control over size and relationship of government receipts (revenue) and expenditures (payment) (Edame, 2010). These expenditures comprises of recurrent expenditures, capital expenditures, subsidies, debt servicing and so on. These expenditures often have significant impact on the economy. Ohanele (2010) further stressed that a well-functioning budget system is vital for the formulation of sustainable fiscal policy and the facilitation of economic growth. In a bid to achieve the macroeconomic goals and objectives of stable and full employment, infrastructural development among others, the national government initiates several types of budget such as surplus, balanced, deficit, supplementary, development budget; and also include the line item or traditional budgeting system, performance budgeting system, planning budgeting system, programming budgeting system and the zero-based budgeting system.

Ogujiuba and Ehigiamusoe (2013) posited that the national budget is the most important economic policy instrument for a government and it reflects the government's priorities regarding social and economic policy more than any other document. In addition, the instrument translates policies, campaign promises, political commitments, and goals into decisions regarding where funds should be spent and how funds should be collected. The focus on the budget has assumed greater prominence in recent years with increasing democratization, civil society participation and the desire to respond to development challenge of poverty. The national budget is basically divided into recurrent and capital budget.

The capital budget is a fragment of the national budget which shows the proportion of the national revenue allocated for the purpose of carrying out project with useful life of more than a year. The crux of this study being 'capital budget' unlike the recurrent budget is initiated to provide funds to finance capital projects or assets. Ogujiuba and Ehigiamusoe (2013) stated that capital project includes the likes of construction of roads, bridges, hospitals, schools, prisons, public administrative buildings, highways, dams, and irrigation systems; the purchase of machinery and equipment; and the supply of water, electricity, and transport, health, and educational facilities. Either a recurrent or capital budget, a budget must fulfill the obligation for which it was initiated.

Generally, for a budget (capital or recurrent) to perform its obligations effectively and efficiently, it must however possess some important qualities. Faleti and Myrick (2012) in their study opined that for a public budget to effectively perform its obligations, it should be well designed, effectively and efficiently implemented, adequately monitored, and ultimately, its performance should be evaluated. However, it must be stated herein that the beauty of a budget lies not in its formulation or initiation but in its implementation. The performance of a country's budget heavily depends on whether it is effectively and efficiently implemented to meet the needs and aspirations of the people of the country. A well-implemented budget helps to translate government policies and programs into outcomes that have a direct, positive impact on people, such as the development of critical infrastructure (electricity, roads, water, hospitals, schools and so on), the provision of employment opportunities, the reduction of poverty, and the supply of transport, health, and educational facilities. Hence this study analyzed impact of capital budget implementation on economic growth in Nigeria.

The size and structure of public expenditure (both recurrent and capital expenditure) is expected to boost the growth in output of the economy. This statement is believed to be true even without conducting any research whatsoever. A recent study conducted by Ogujiuba and Ehigiamusoe (2013) indicated that the level of capital budget implementation in Nigeria since the advent of democracy in 1999 has been low and that there have been wide disparity between budgeted capital expenditures and actual capital expenditures. The researcher would resolve to the fact that this above assertion is true but the fact is that the problem with capital budget is traceable to as far back as 1986 (SAP period), this has been a recurring problem.

Contrary to Ogujiuba and Ehiagiamusoe (2013) that the level of capital budget implementation in Nigeria since the advent of democracy in 1999 has been low, Maku (2009) reported that the rate of government expenditures have been increasing since the Structural Adjustment Programme (SAP) despite having no significant contribution to economic growth in Nigeria. What Maku (2009) has been able to establish is that from the SAP period till this time, the major challenge among others challenges confronting capital budget implementation in Nigeria is that in as much as the capital budget is implemented, it is not having any significant positive effect on the nation's Gross Domestic Product (GDP).

Tracing history revealed that the implementation of the 2012 capital budget did not match expectations, as controversy concerning the implementation level of the 2012 Appropriation Act continued between the executive and legislative arms of the government. While the executive claimed that 56% of the budget had been released and implemented by July 20, 2012, the National Assembly submitted that less than 30% of the budget was implemented by September 30, 2012. The Central Bank of Nigeria (CBN) in their various bulletin issues has made it clear that administration, economic services, social community services and transfer are the major components of capital expenditure. The aforementioned will be used as proxy for capital expenditure in Nigeria. It becomes imperative to use this variables as they serve a good indicators to reveal the actual component of capital expenditure that contribute negatively to economic growth or otherwise. Unfortunately, studies by Olurakinse (2012), Ogujiuba and Ehiagiamusoe (2013) among others previously conducted have not addressed the subject matter from this perspective.

The broad objective of this study is to evaluate the impact of capital budget implementation on the economic growth in Nigeria, while the specific objectives are to assess the impact of the capital implementation of expenditure on administration on the growth of the Nigerian economy, also to evaluate the impact of the capital implementation of economic services on administration on the growth of the Nigerian economy and to examine the impact of the capital implementation of expenditure on social community services on the growth of the Nigerian economy.

LITERATURE REVIEW

Capital Budget Implementation in Nigeria

Emphasizing the importance of capital budget implementation in the process and promotion of democracy within the territory of a nation state, Makstutis (2007) analyzed the global economic factors that drive the development of a nation state and examined the place of a nation state in the development of progress, the promotion of democracy in the territory of the state, and activation of public activity in light of globalization Boyo (2012) asserted that Nigerians may be misguided, however, for expecting substantial improvements in social welfare resulting for the appropriate and full disbursement of the capital budget. Indeed, the seemingly traditional pattern of less than 30% allocation for capital projects cannot truly support rapid infrastructural improvement for a country of over 160 million people. Furthermore, tangible progress is further precluded by the prevalent culture of impunity and corruption, which inevitably substantially diminishes the already meager capital budget.

Capital Budget Expenditure and Economic Growth

Different forms of government expenditures and economic growth have been examined in the literature. Rizvi, Qamar and Shamim (2010) investigated the relationship between government expenditures and Gross Domestic Product (GDP) based on modern time series econometric techniques. The paper used thirty years of data for the period from 1979 to 2008 and found a long-run relationship between government development expenditures and economic growth. A Granger causality test indicated that government expenditures are caused by economic growth, while an error correction model showed that there is a short-run relationship between government development expenditures and economic growth. Wagner's law proposed by the German economist Adolph Wagner (1835-1917) predicts that the development of an industrial economy will be accompanied by an increased share of public expenditures in Gross National Product. During the last three decades, Wagner's law has been tested very intensively, particularly for the developed countries and more recently for developing countries (Rizvi et al., 2010). Henrekson (2003) claimed that there are three main reasons for an increase in the role of government. First, industrialization and modernization would lead to a substitution of

public for private activities. Second, an increase in real income leads to an expansion of income-elastic "cultural and welfare" expenditures. Third, natural monopolies, such as railroads, have to be taken over by government because private companies would otherwise be unable to run these undertakings efficiently because it would be impossible to raise the huge financing needed to develop them.

Theoretical Review

The Keynesian Theory

Keynes theory on public expenditure and economic growth was among the most noted with his apparently contrasting viewpoint on this relation. Keynes regards public expenditures as an exogenous factor which can be utilized as a policy instruments promote economic growth. From the Keynesian's point of view, public expenditure can contribute positively to economic growth. Hence, an increase in the government consumption is likely to lead to an increase in employment, profitability and investment through multiplier effects on aggregate demand. As a result, government expenditure augments the aggregate demand, which provokes an increased output depending on expenditure multipliers.

Empirical Review

Loizides and Vamvouks (2005) employed the causality test to examine the relationship between public expenditure and economic growth, using data set on Greece, United Kingdom, and Ireland. The authors found that government size Granger causes economic growth in all the countries they studied. The results also indicated that economic growth Granger causes public expenditure for Greece and United Kingdom.

Zheng, Li, Wong and Li (2010) studied the empirical analysis on the relationship between the sizes of Chinese government, as measured by its annual spending, and the growth rate of the economy. More specifically, it designed to examine the applicability of Wagner's law to the Chinese economy. The statistics used in this research is annual time series data on total government spending and gross domestic product covering the period from 1952 to 2007. Empirical results showed no strong evidence in support of the validity of Wagner's law for Chinese economy.

Bingxin, Fan and Saurkar, (2009) assessed the impact of the composition of public expenditure on economic growth in developing countries. They used a dynamic generalized method of moment (GMM) model and a panel data set for 44 developing countries between 1980 and 2004. The results indicated that the various types of government spending had different impact on economic growth. In Africa, human capital expenditure contributes to economic growth whereas, in Asia, capital formation, agriculture, and education expenditure had strong growth promoting effect.

Asghar, Hussain and Rehman (2012) examined the impact of government spending on poverty reduction in various sectors of the economy in Pakistan. Time series annual data for the period from 1972 to 2008 were used to analyze the long-run impact of government spending on education, health, and economic and community services. The results showed that government spending on education and law and order significantly contribute to poverty reduction, while government spending on budget deficit and economic and community services appeared to be responsible for increased poverty in Pakistan. The study recommended that the Government of Pakistan allocate more resources to the education and health sectors to foster the development of human capital. Health and education are very important determinants of poverty. Educated and healthy individuals may have more opportunities to obtain better employment, which

increases their earnings and helps raise their standard of living. Education is considered to be the most important way to build human capital and eradicate poverty by enhancing productivity. Health is another major form of human capital. The results of various studies have shown that there is a positive relationship between government expenditures on health and poverty reduction, as spending on health increases individuals' capabilities and thereby reduces poverty. Improvements in health lead to increased life expectancy, which provides more opportunities for people to work and earn more income and eventually leads to poverty reduction. Government spending on both education and health are accordingly expected to have a negative impact on poverty (Asghar, *et al* 2012).

Maku (2009) examined the connection between total government spending and economic growth in Nigeria over 30 years (1977-2006). The author regressed real GDP on private investment, human capital investment, government investment, and consumption spending. The result showed that human capital investment as a share of real output has a positive but statistically non-significant effect on the growth rate of real GDP. Maku concluded that government expenditures have had no significant influence on economic growth in Nigeria based on his analysis, which reveals that the variables have not maintained a uniform pattern over the period of study because of a persistent random shock effect on the time series. He reported that the rate of government expenditures to real GDP has been increasing since the Structural Adjustment Programme (SAP) despite having no significant contribution to economic growth in Nigeria. Maku attributed this increase to the lack of government monitoring of the contract awarding process of capital projects, the ineffective deployment of government funds to productive activities, and the lack of transparency and accountability by the government regarding government spending (Oluwatobi & Ogunrinola, 2011).

Ogujiuba and Ehigiamusoe (2013) examined the capital budget implementation in Nigeria: evidence from the 2012 capital budget. Using descriptive analysis, this paper examines the capital budget implementation in Nigeria by focusing on the 2012 Federal Government Budget. The findings indicate that only 51% of the total appropriated funds for capital expenditures were utilized as of December 31st, 2012. The observed level of performance is insufficient to foster rapid economic development and reduce poverty. Some of the challenges that are responsible for the low performance include poor conceptualization of the budget, the inadequacy of implementation plans, the non-release or late release of budgeted funds, the lack of budget performance monitoring, the lack of technical capacity among MDAs, and delays in budget passage and enactment. The paper recommends that Nigerian government formulate a realistic and credible budget, release appropriated funds early to Ministries, Departments, and Agencies (MDAs), and strengthen MDAs' technical capacity to utilize capital expenditures in order to improve the index of capture in public expenditures.

METHOD

Model Specification

The study adopts an econometric model in determining the effect of capital budget implementation on economic growth in Nigeria. The study adopts a similar model used by Oke (2013) which is specified below as:

$$GDP = f(PEX, PRE, PCE, PDS) \quad \text{Eqn 3.1}$$

In specifying the model for this study, the above model will be modified substituting all the explanatory variables of the study for CAD, CES, CSCS and CT. As a result, the new model adopted to underpin the research is specified below as:

GDP = f (CAD, CES, CSCS, CT, U) ----------Eqn 3.2

GDP= Gross Domestic Product, CAD= Capital Expenditure on Administration, CES= Capital Expenditure on Economic Services, CSCS= Capital Expenditure on Social Community Services, CT= Capital Expenditure on Transfer

Sources of Data and Methods of Estimation

The model is estimated using time series annual data for the period 1981 – 2014. The data needed for the study are secondary in nature; implying data will be obtained from published sources. The main source of these data is the Central Bank of Nigeria (CBN) Statistical Bulletin, various issues. The study employed techniques of co-integration and error correction model (ECM) after carried out correlation and stationary test on the data collated to ascertain the direction of relationship between the series, and the order of integration. The intention behind the use of co-integration and error correction model is to tack both long run and short run nexus between interest rate and portfolio management.

DATA PRESENTATION AND ANALYSIS OF RESULT

Results

Table 4.1 Correlation Matrix

	GDP	CAD	CES	CSCS	CT
GDP	1				
CAD	0.80073808	1			
CES	0.65682794	0.50275160	1		
CSCS	0.77557282	0.99095501	0.45802600	1	
CT	0.75344927	0.89419913	0.30550225	0.89786601	1

Source: Authors Computation, (2017)

The correlation coefficients between pairs of variables included in the model are presented in table 4.1 above. Table 4.1 reveals that there is positive correlation between all pairs of variables used in the study. Specifically tables 4.1 reported correlation coefficient of 0.80073808, 0.65682794, 0.77557282, 0.75344927, 0.50275160, 0.99095501, 0.89419913, 0.45802600, 0.30550225, 0.89786601 for GDP and CAD, GDP and CES, GDP and CSCS, GDP and CT, CAD and CES, CAD and CSCS, CAD and CT, CES and CSCS, CES and CT, CSCS and CT.This implies that the above pairs of variables moves in the same direction, meaning as one variable increases the other also increases with the strength of their relationships reflected in the magnitude of the correlation coefficient.

Unit Root Test Analysis

Table 4.2a Augmented Dickey Fuller Unit Root Test at Level (1981-2014)

	ADF stat	**1% critical value**	**5% critical value**	**Order of integration**	**Remarks**
GDP	-0.197626	-3.646342	-2.954021	---	Non-Stationary
CAD	-0.341471	-3.646342	-2.954021	---	Non-Stationary
CES	-0.952327	-3.646342	-2.954021	---	Non-Stationary
CSCS	-0.108036	-3.646342	-2.954021	---	Non-Stationary
CT	-2.601504	-3.646342	-2.954021	---	Non-Stationary

Source: Authors Computation, (2017)

Table 4.2b Augmented Dickey Fuller Unit Root Test at First Difference (1981-2014)

Variables	ADF stat	1% critical value	5% critical value	Order of integration	Remarks
GDP	-5.378235	-3.653730	-2.957110	I(1)	Stationary
CAD	-9.047395	-3.653730	-2.957110	I(1)	Stationary
CES	-5.901772	-3.653730	-2.957110	I(1)	Stationary
CSCS	-8.301753	-3.653730	-2.957110	I(1)	Stationary
CT	-7.146513	-3.653730	-2.957110	I(1)	Stationary

Note: * (**) denotes significance at 1% (5%) significant levels respectively
Source: Authors computation, (2017)

Tables 4.2a&b presents the unit root test result of variables used in the study. Table 4.2a reports the unit root test result of the series at level while table 4.2b reports the unit root test at first difference. From table 4.2a&b it can be observed that all the series used in the study are not stationary at level, but they became stationary only after first differencing, which connotes that all the variables are integrated of order one I(1). This implies that all the variables used in the study retain innovative shock passed on them only for short period of time after which they let go. Hence confirmation of the presence of non-stationary variables in the series, which brings to book the possibility of spurious relationship in the short run due to the presence of random walk, suggest that long run association ship test should be carried out to test for the presence of co-integrating equation amidst the multivariate series in the long run. The co-integration test was done using Johansen maximum likelihood ratio approach

Co-integration result

Table 4.3 Johansen Co-integration Test Result
Series: GDP CAD CES CSCS CT

Hypothesized No of CE(s)	Eigen Value	Trace statistics	5 Percent Critical Value	Probability
None *	0.894658	147.7052	76.97277	0.0000
At most 1 *	0.809192	75.68797	54.07904	0.0002
At most 2	0.338877	22.68044	35.19275	0.5497
At most 3	0.212130	9.438339	20.26184	0.6946
At most 4	0.054958	1.808828	9.164546	0.8154

***(**) denote rejection of the hypothesis at 5%(1%) significance level**
trace test indicate 2 cointegration equation(s) at the 0.05 level of significance.

The normalized long run equation is thus estimated as:

GDP	CAD	CES	CSCS	CT	C
1.000000	-387.2292	69.05100	184.1746	-183.5151	1000.236
	(32.5932)	(9.89691)	(54.4776)	(11.8732)	(652.254)

Source: Authors Computation, (2017)

Co-integration test result presented in table 4.3 above is the summary of co-integration analysis using Johansen trace statistics approach. This test statistics strongly rejects the null hypothesis of no co-integration, in favor of two co-integrating equation at 5 percent significance level. This depicts that even though there is no short run equilibrium equation as a result of the presence of non-stationary series in the model, on the long run there is equilibrium relationship, meaning linear combination of all the series will produce a stationary error term on the long run. From the normalized long run estimate presented in table 4.3 it was revealed that capital expenditure on administration and transfer exert significant negative impact on economic growth on the long run, while capital expenditure on economic services as

well as socio community services exert significant positive impact on economic growth on the long run. It thus implies that implementation of capital expenditure on the general ground exert significant influence on economic growth though the direction of such impact depend on the type of capital expenditure.

Error Correction Model (ECM)

Table 4.4 Parsimonious (ECM)
Series: GDP CAD CES CSCS CT
Dependent Variable: D(GDP)

Variable	Coefficient	Std Error	t-statistics	Prob.
C	-52.09077	548.8256	-0.094913	0.9253
D(GDP(-2))	0.507408	0.127908	3.966971	0.0008
D(CAD)	27.20799	16.42982	1.656012	0.1133
D(CAD(-2))	171.6068	29.91349	5.736770	0.0000
D(CES)	-27.81787	5.544910	-5.016831	0.0001
D(CES(-1))	-32.57411	7.938129	-4.103500	0.0006
D(CES(-2))	-14.52232	9.355409	-1.552291	0.1363
D(CSCS)	-17.22578	24.88537	-0.692205	0.4968
D(CT(-1))	63.28427	10.73068	5.897506	0.0000
D(CT(-2))	74.27267	10.44065	7.113798	0.0000
ECM(-1)	-0.108110	0.081412	-1.327938	0.1992

R-Squared=0.901087, Adjusted R-Square=0.851630, Durbin Watson stat=2.330456, F-statistics=18.21976, Prob (F-statistics) =0.000000
Source: Authors Computation, (2017)

The result of parsimonious error correction model presented in table 4.4 above showed the coefficient of the parameter estimates, alongside the standard errors, t-values and the probability values. The result reveals that there existed pronounced feed-back of the previous period disequilibrium from the long-run trend. Specifically, the result indicated feed-back of about 10%. Notably the reported ECM(-1) coefficient is correctly signed, thus validating the presence of long run relationship amidst the variables and that about 10% of the short run inconsistencies are corrected and incorporated into the long run dynamics annually. The parsimonious error correction model explained the short run relationship between the variables. Notably the result revealed that on the short run capital expenditure on administration and transfer exert positive impact on economic growth, while the impact of capital expenditure on economic services, as well as socio community services tend to be negative. The result reported R-square value of 0.901087, which implies that about 90% of the systematic variations in the dependent variable (gross domestic product) can be explained by variations in the explanatory variables. The result showed that the model is overall significant given the f-statistics probability value of 0.000000. This implies that the explanatory variables jointly and significantly explain the variation in economic growth measured by real gross domestic product, thus the model is a good-fit. The Durbin-Watson statistics of 2.330456 which falls within the acceptance region of the null autocorrelation between successive values of error terms, hence the model is econometrically fit.

From the analyses conducted in the study the following discoveries were made: First the study discovered that there is strong relationship between capital expenditure implementation on administration, economic services, socio community services, transfer and economic growth of Nigeria. Secondly it was discovered in the study that there is on the long run capital expenditure implementation on administration exert significant negative impact on economic growth of Nigeria, but positive on the short run. Thirdly the study discovered that on the long

run capital expenditure on economic services exert significant positive on economic growth of Nigeria, though negative on the short run. Fourthly the study discovered that on the long run capital expenditure on socio community service exert significant positive impact on economic growth of Nigeria, though negative on the short run. On the fifth ground the study discovered that on the long run capital expenditure on transfer exert negative impact on economic growth but positive on the long run, and finally the study discovered that both on the long and short run capital expenditure implementation exert significant impact on economic growth of Nigeria.

CONCLUSION AND RECOMMENDATIONS

Premised on the findings of the study, it was concluded that capital expenditure implementation is germane to maintaining and sustaining economic growth in Nigeria, that capital expenditure on some sectors of the economy influence the growth prospect of the economy more on the long run that some other sectors. Based on the discoveries made in the study government should ensure adequate implementation of capital expenditure in the country especially in areas of economic services and socio community services as this has a significant capacity to trigger rapid growth of the economy on the long run, increase the percentage of the total expenditure that goes to capital expenditure has this will put the economy on the vantage position for rapid growth which when sustained will culminate into economic development, and also overhaul the ministries, government agencies and parastatals to curb and correct loopholes impeding effective and efficient implementation of government capital budget in the country.

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APPENDIX

CORRELATION

	GDP	CAD	CES	CSCS	CT
GDP	1				
CAD	0.80073808	1			
CES	0.65682794	0.50275160	1		
CSCS	0.77557282	0.99095501	0.45802600	1	
CT	0.75344927	0.89419913	0.30550225	0.89786601	1

COINTEGRATION

Date: 07/03/16 Time: 13:25
Sample (adjusted): 1983 2014
Included observations: 32 after adjustments
Trend assumption: No deterministic trend (restricted constant)
Series: GDP CAD CES CSCS CT
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.894658	147.7052	76.97277	0.0000
At most 1 *	0.809192	75.68797	54.07904	0.0002
At most 2	0.338877	22.68044	35.19275	0.5497
At most 3	0.212130	9.438339	20.26184	0.6946
At most 4	0.054958	1.808828	9.164546	0.8154

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.894658	72.01724	34.80587	0.0000
At most 1 *	0.809192	53.00753	28.58808	0.0000
At most 2	0.338877	13.24210	22.29962	0.5333
At most 3	0.212130	7.629511	15.89210	0.5924
At most 4	0.054958	1.808828	9.164546	0.8154

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

GDP	CAD	CES	CSCS	CT	C
0.000152	-0.059041	0.010528	0.028081	-0.027981	0.152506
-4.50E-05	0.052339	-0.013371	-0.040072	0.033526	-0.190533
9.59E-05	0.027714	0.011941	-0.102777	-0.035125	0.478839

-3.16E-05	-0.009282	0.015106	-0.046548	0.006632	-0.862751
3.64E-05	0.010722	0.004802	-0.011675	-0.011938	-1.097399

Unrestricted Adjustment Coefficients (alpha):

D(GDP)	-916.3959	932.7020	-1432.510	560.7385	165.4738
D(CAD)	66.38615	52.44755	-14.26456	4.571110	3.349549
D(CES)	-36.52684	9.716487	21.11820	-24.84901	-7.516081
D(CSCS)	36.22100	40.77173	-4.671892	5.285020	3.711857
D(CT)	55.01625	19.72661	-8.944327	-8.973016	11.15814

1 Cointegrating Equation(s): Log likelihood -937.6641

Normalized cointegrating coefficients (standard error in parentheses)

GDP	CAD	CES	CSCS	CT	C
1.000000	-387.2292	69.05100	184.1746	-183.5151	1000.236
	(32.5932)	(9.89691)	(54.4776)	(11.8732)	(652.254)

Adjustment coefficients (standard error in parentheses)

D(GDP)	-0.139723
	(0.09075)
D(CAD)	0.010122
	(0.00208)
D(CES)	-0.005569
	(0.00222)
D(CSCS)	0.005523
	(0.00154)
D(CT)	0.008388
	(0.00182)

2 Cointegrating Equation(s): Log likelihood -911.1604

Normalized cointegrating coefficients (standard error in parentheses)

GDP	CAD	CES	CSCS	CT	C
1.000000	0.000000	-44.78198	-168.3206	96.72535	-613.6913
		(26.9748)	(100.137)	(33.4693)	(1840.25)
0.000000	1.000000	-0.293968	-0.910301	0.723707	-4.167886
		(0.06030)	(0.22386)	(0.07482)	(4.11402)

Adjustment coefficients (standard error in parentheses)

D(GDP)	-0.181682	102.9211
	(0.09003)	(44.6861)
D(CAD)	0.007762	-1.174471
	(0.00142)	(0.70411)
D(CES)	-0.006006	2.665125
	(0.00230)	(1.14065)
D(CSCS)	0.003688	-0.004588
	(0.00098)	(0.48766)
D(CT)	0.007501	-2.215749
	(0.00180)	(0.89281)

3 Cointegrating Equation(s): Log likelihood -904.5393

Normalized cointegrating coefficients (standard error in parentheses)

GDP	CAD	CES	CSCS	CT	C
1.000000	0.000000	0.000000	-281.0842	-21.65686	585.9543
			(51.1911)	(23.5311)	(1416.66)
0.000000	1.000000	0.000000	-1.650529	-0.053404	3.707097

			(0.16841)	(0.07741)	(4.66065)
0.000000	0.000000	1.000000	-2.518058	-2.643523	26.78858
			(0.68617)	(0.31541)	(18.9890)

Adjustment coefficients (standard error in parentheses)

D(GDP)	-0.319111	63.22098	-39.22534
	(0.09131)	(41.1250)	(10.2241)
D(CAD)	0.006394	-1.569795	-0.172698
	(0.00157)	(0.70867)	(0.17618)
D(CES)	-0.003980	3.250389	-0.262308
	(0.00257)	(1.15830)	(0.28796)
D(CSCS)	0.003240	-0.134064	-0.219615
	(0.00113)	(0.51116)	(0.12708)
D(CT)	0.006643	-2.463629	0.208647
	(0.00208)	(0.93485)	(0.23241)

4 Cointegrating Equation(s): Log likelihood -900.7245

Normalized cointegrating coefficients (standard error in parentheses)

GDP	CAD	CES	CSCS	CT	C
1.000000	0.000000	0.000000	0.000000	-411.7159	11023.86
				(82.4451)	(5004.32)
0.000000	1.000000	0.000000	0.000000	-2.343835	64.99858
				(0.51118)	(31.0280)
0.000000	0.000000	1.000000	0.000000	-6.137819	120.2952
				(0.92468)	(56.1268)
0.000000	0.000000	0.000000	1.000000	-1.387695	37.13444
				(0.29515)	(17.9152)

Adjustment coefficients (standard error in parentheses)

D(GDP)	-0.336817	58.01621	-30.75480	58.01955
	(0.09028)	(40.3297)	(12.3179)	(58.9471)
D(CAD)	0.006250	-1.612224	-0.103647	1.015830
	(0.00159)	(0.70902)	(0.21656)	(1.03632)
D(CES)	-0.003196	3.481037	-0.637678	-2.428874
	(0.00244)	(1.09090)	(0.33319)	(1.59449)
D(CSCS)	0.003073	-0.183119	-0.139779	-0.382506
	(0.00113)	(0.50685)	(0.15481)	(0.74082)
D(CT)	0.006926	-2.380342	0.073101	2.091383
	(0.00208)	(0.92886)	(0.28370)	(1.35765)

OVERPARAMETERIZED ECM

Dependent Variable: D(GDP)
Method: Least Squares
Date: 07/03/16 Time: 13:32
Sample (adjusted): 1984 2014
Included observations: 31 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-136.7246	650.4971	-0.210185	0.8364
D(GDP(-1))	0.079935	0.318572	0.250915	0.8053
D(GDP(-2))	0.445886	0.284659	1.566388	0.1381
D(CAD)	24.45312	27.99324	0.873537	0.3961
D(CAD(-1))	30.96988	39.62123	0.781649	0.4466
D(CAD(-2))	156.8842	55.68415	2.817394	0.0130
D(CES)	-28.02588	9.614871	-2.914847	0.0107
D(CES(-1))	-33.39778	11.95104	-2.794549	0.0136
D(CES(-2))	-13.18742	14.18901	-0.929411	0.3674
D(CSCS)	-16.68643	37.42440	-0.445870	0.6621
D(CSCS(-1))	2.344891	45.01525	0.052091	0.9591
D(CSCS(-2))	-8.404996	41.45773	-0.202736	0.8421
D(CT)	-2.322230	12.75218	-0.182104	0.8579
D(CT(-1))	68.68301	21.03008	3.265941	0.0052
D(CT(-2))	69.39536	30.04592	2.309644	0.0356
ECM(-1)	-0.085640	0.106861	-0.801415	0.4354

R-squared	0.905164	Mean dependent var	2868.825
Adjusted R-squared	0.810328	S.D. dependent var	5745.779
S.E. of regression	2502.363	Akaike info criterion	18.79418
Sum squared resid	93927297	Schwarz criterion	19.53430
Log likelihood	-275.3098	Hannan-Quinn criter.	19.03544
F-statistic	9.544532	Durbin-Watson stat	2.244312
Prob(F-statistic)	0.000040		

PARSIMONIOUS ECM

Dependent Variable: D(GDP)
Method: Least Squares
Date: 07/03/16 Time: 13:40
Sample (adjusted): 1984 2014
Included observations: 31 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-52.09077	548.8256	-0.094913	0.9253
D(GDP(-2))	0.507408	0.127908	3.966971	0.0008
D(CAD)	27.20799	16.42982	1.656012	0.1133
D(CAD(-2))	171.6068	29.91349	5.736770	0.0000
D(CES)	-27.81787	5.544910	-5.016831	0.0001
D(CES(-1))	-32.57411	7.938129	-4.103500	0.0006
D(CES(-2))	-14.52232	9.355409	-1.552291	0.1363
D(CSCS)	-17.22578	24.88537	-0.692205	0.4968
D(CT(-1))	63.28427	10.73068	5.897506	0.0000
D(CT(-2))	74.27267	10.44065	7.113798	0.0000
ECM(-1)	-0.108110	0.081412	-1.327938	0.1992

R-squared	0.901087	Mean dependent var	2868.825
Adjusted R-squared	0.851630	S.D. dependent var	5745.779
S.E. of regression	2213.205	Akaike info criterion	18.51369
Sum squared resid	97965505	Schwarz criterion	19.02253
Log likelihood	-275.9622	Hannan-Quinn criter.	18.67956
F-statistic	18.21976	Durbin-Watson stat	2.330456
Prob(F-statistic)	0.000000		