Sustainability of Current Account Deficits in Kenya

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KIPPRA in Brief

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Abstract

The Kenya Vision 2030 aims to transform Kenya into a globally competitive and prosperous nation with a high quality of life by the year 2030. Its competitiveness depends on, among others, the performance of its current account. Kenya's current account is a persistent under-performer and has recorded a huge deficit to the tune of 18.7 per cent of GDP in the year 1998, and recorded a surplus only twice in the accounts lifetime. Its recent performance raises concern because, since the 2003 surplus, it has been on an unabated downward trend, which has brought it to a deficit greater than 10 per cent since 2011. Weighed against the international threshold of 5 per cent of GDP, Kenya's deficit raises serious doubt on its sustainability. This study uses data between the years 1975 to 2011 and the intertemporal approach to the current account to test the sustainability of Kenya's current account deficit. It tests the existence of a long run steady state by way of cointegration of the exports and imports, as constituted in the current account. The test fails to find cointegration between the two variables, leading to the conclusion that the current account deficit is unsustainable. This implies that there is a possibility of a reversal, which may develop to a crisis. It recommends urgent policy interventions to avert this possibility.

Abbreviations and Acronyms

CAB   Current Account Balance

GDP   Gross Domestic Product

GNI   Gross National Income

IMF   International Monetary Fund

OLS   Ordinary Linear Regression

DOLS   Dynamic Ordinary Linear Regression

ARIMA   Autoregressive Moving Average

Table of Contents

1.　Introduction

Among the key macroeconomic objectives for countries the world over is external balance. External balance is usually represented by a county's balance of payments, which is an accounting record of its exports of goods and services. The balance of payment account consists of two primary components, the current and capital account. The capital account handles the net sales of privately held assets, while the current account handles the net sales of goods and services. Balances in the current account are either positive (surplus) or negative (deficit).

The current account balance (hereafter CAB) is of particular importance since, if a country is running a current account deficit, it is importing present consumption and exporting future consumption, while a country running surplus exports presents consumption and imports future consumption. On the other hand, a country that uses foreign borrowing takes advantage of the international market to build up its capital stock as opposed to when it operates as a closed economy. Imbalance in the current account might predict future changes in a floating or managed foreign exchange rate regime. The main change is where domestic interest rates are increased to attract foreign capital. Therefore, the sustainability of the current account has become a major concern of not only policy makers, but also central banks and market analysts of emerging economies (Baharumshah *et al*., 2004).

A current account is considered sustainable if a continuation of the current government policy stance and private sector behaviour are not going to necessitate a drastic policy shift, such as a fiscal contraction, or lead to a currency crisis. A currency crisis is defined as a significant depreciation of currency (Edwards, 2001; Frankel and Rose, 1996 and Milesi-Ferretti and Razin, 2000). In its worst form, it can result in an exchange rate collapse, leading to inability to service external debt. A drastic policy change may be triggered either by a domestic or foreign shock, causing a shift in confidence among domestic or foreign investors.

The current account balance is therefore an important indicator of an economy's performance. This is because if it reflects a country's net claims or liabilities to the rest of the world, showing the intertemporal decisions of domestic and foreign residents, their saving-investment behaviour, which is closely related to the status of the fiscal balance, and private savings, which are key factors of economic growth. While current account deficits present no major challenge at any level, deficits, especially those that are large, can indicate a country's lack of competitiveness. When these deficits are high and persistent, they signal a country's vulnerability to a crisis (Edwards, 2002).

According to World Bank (2012), Kenya is walking a tight rope with a deficit of 13.7 per cent of GDP, and with imports growing by 20 per cent compared to export growth at 10 per cent. Import growth was attributed to oil imports, which accounted for 27.6 per cent of the total import bill in 2011, jumping from 8.9 per cent of GDP in 2010 to 11.6 per cent of GDP in 2011. This is attributed to the rise in world crude prices by 33 per cent and growth in the volume of consumption by 12 per cent increase (from 3.2 to 3.6 million metric tonnes), which was due to the need to expand thermal power, as hydropower operated below potential. With factor income and transfers roughly constant, the deterioration in the trade balance was also apparent in the current account balance.

Kenya's current account has been in deficit for many years. The economy has recorded a surplus only twice in the period 1975-2011 in the years 1977 and in 2003, according to World Bank data. The trend of the CAB for Kenya as a percentage of the GDP is shown in Figure 1.1.

Not only has Kenya operated a deficit for a long time, but it has been above the threshold that economists would consider sustainable (Figure 1.1). Kenya's CAB performance raises serious doubt over its sustainability, going by Summers (1996) and Kenen and Kenen (1995) 5 per cent threshold of CAB as a percentage of GDP. The first highest deficit occurred in 1979 and was instigated by a severe drought and oil shock. The year 1982 saw a change in exchange rate regime from fixed to a crawling peg and could have caused the spike in the deficit again. Aid inflows more than doubled during the 1980s (from 6% to 13% of GNI), and this could have contributed to the relative health of the current account in this period. By 1988, Kenya had refocused its current account from export growth to foreign account borrowing, with World Bank and IMF lending to Kenya.

Figure 1.1: Kenya's CAB as a percentage of GDP, 1975-2011
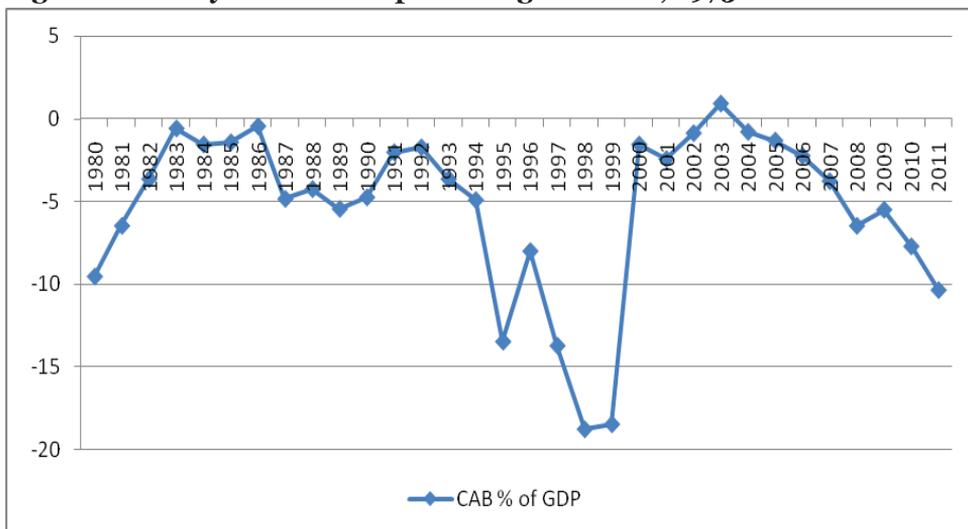
Data Source: World Bank (2011), International Financial Statistics

There was a decline starting 1995 attributable to the stoppage of aid by the IMF and World Bank and the subsequent loss of confidence by investors, which increased the current account deficit to 17.45 per cent of GDP, then in 1996, the World Bank gave a loan which, alongside IMF they withheld in 1997, making the CAB to drop further. This demonstrates how vulnerable Kenya's balance of payment account had become to foreign borrowing and how it reflected in the size of the deficit. Double digit deficit went to a high of 18.7 per cent of GDP in 1998, which was attributed to the withholding of aid and subsequent drought that affected the country and leading to a loss of confidence by lenders.

Resumption of aid in 2000 brought the CAB to a surplus in 2003. After this surplus, the account has continued to plummet to hit -8 per cent of GDP in the year 2010, the lowest in a decade. Only 2 surpluses have been recorded in Kenya: in 1977 attributed to the coffee boom, and in 2003 attributed to decline in imports as receipts from exports increased. Much of this increase was attributed to exports of tea, horticulture and non-traditional commodities, particularly manufactured goods and raw materials. Kenya has not only operated with deficits greater than 5 per cent for the longest time in her history, but also exhibited some reasonable volatility in her CAB. The surpluses would be expected to settle the past international debts, but looking at the sizes and spans of the surpluses, they raise doubt on their capacity to plunge the gap accumulated over the years.

1.1   Background of Kenya's Current Account Policies

In an attempt to arrest the rising deficits, the government has used several policy strategies. The first strategy anchored on import substitution was captured in Sessional Paper No. 10 of 1965. This policy, which was in operation between the 1960s and the late 1970s, aimed at developing trade and protecting domestic industries. It hoped to ease pressure on the balance of payment, increase employment and secure rapid growth of trade, while putting the economy under domestic control. It did not bear much fruit since the only recorded surplus after this was in the year 1977, which was attributed to a boom in traditional export coffee and was thus not a result of policy interventions.

In the 1980s, structural adjustment programmes were introduced with a view to streamlining the public service. This shifted policy from protection of domestic market to a more competitive environment. It also aimed at facilitating use of local resources, expanding output and increasing employment. It involved the promotion of non-traditional exports, liberalization of market system, and reform of foreign trade regulations. This period of policy recorded respectable stability, with current account staying within the threshold and missing it with narrow margins.

In the 1990s and embodied in the sixth development plan of 1989-1993, policy shifted to an export promotion strategy based on the creation of an enabling environment for the growth of exports. This was to be achieved through reforming institutions, reducing tariffs, abolishing export duties, among other incentives aimed at encouraging export growth. This period recorded the worst performance with a record deficit of 17 per cent, 18 per cent and 19 per cent but towards the end, the performance built up to a surplus in 2003.

From the year 2004 to-date, the main plan document has been Vision 2030, which aims at making Kenya a globally competitive and prosperous economy. Under the economic recovery strategy for wealth and employment creation (2003) is the National Export Strategy 2003-2007. This strategy aims at spurring national exports with a view to synergizing and consolidating export promotion and development. This policy has suffered setbacks due to fluctuations in international market prices, infrastructure bottlenecks, and vulgarism of weather. It has therefore not succeeded in putting the current account on a recovery. The first four years of Vision 2030, captured in the first medium term plan (2008-2012), envisaged reduction in deficit from -6.6 per cent of GDP in the financial year 2008/09 to -5.3 per cent of GDP in 2011/12. The account performed well in the first two years by hitting its targets, but in the subsequent two years 2010/11 and 2011/12, it largely missed its targets as shown in Table 1.1.

As shown in Table 1.1, not only is the CAB under-performing, it is worsening. Current account policy shows that policy has so far failed to hit its target. Indeed, the account recorded stability only during the structural adjustment programmes. An empirical analysis of the sustainability of Kenya's current account is therefore necessary to inform the nature of policies needed to correct it and, indeed, whether amendments are needed.

1.2   Problem Statement

External balance is one of the key macroeconomic objectives of a nation. Its health is indicated by, among others, the current account. According to Fischer (1988), the primary indicator of a looming crisis is the current account deficit in the form of large actual or projected current account deficits, or for countries that have to

Table 1.1: Target and actual current account deficits for first medium term plan

Financial year	2008/09	2009/10	2010/11	2011/12
Target	-7.0	-6.1	-5.6	-5.3
Actual	-6.6	-5.0	-9.1	-9.4

make heavy debt repayments, insufficiently large surpluses. Despite this, trends in trade and current account deficit in Kenya show a consistent and excessive deficit, hitting a record high of 18.7 per cent of GDP in 1998, and has now hit a decade high of 11 per cent of GDP in both 2011 and 2012. Of concern is that to begin with, Kenya's surpluses are rare and come in small sizes compared to realized deficit and also that since year 2003 surplus, the upward trend in growth of deficit has gone on unabated. Furthermore, a look into the history of Kenya's balance of payment account trends show a worrying pattern of heavy reliance on donor funding, with a heavy deficit in the current account coming whenever a stoppage of lending ensues.

While a current account deficit may be a good thing when it measures the underlying investment finance gap that needs to be filled, it can reflect a dangerous and unsustainable imbalance between national savings, investment and the accumulation of debt. A current account deficit may also predict future changes in a floating exchange rate regime such as Kenya's and, therefore, its sustainability becomes a major concern not only for policy makers, but also the Central Banks and market analysts of the emerging economies. This, therefore, raises the question of the long-term sustainability of Kenya's current account deficit. Traditional financial market indicators may not predict the rising of the deficit to a crisis proportion, and this, therefore, necessitates an inquiry into the sustainability of the current account to act as an early warning indicator to the likely emergence of a macroeconomic crisis.

1.3   Research Questions

(i)   How sustainable is Kenya's current account deficit?

(ii)   What policy options can improve the sustainability of Kenya's current account?

1.4   Objectives of the Study

The general objective of this study is to determine the sustainability of Kenya's current account deficits in the long run. The specific objectives are:

(i)   To determine the state of Kenya's current account deficit sustainability

(ii)   To determine the policy options that would enhance the sustainability of the current account

1.5   Justification of the Study

The current account is neither a policy variable, such as fiscal policy or money stock, nor a policy target, like the inflation rate, level of output and employment. It can be referred to as an intermediate target, which is both a broad reflection of the stance of macroeconomic policy and a source of information about the behaviour of economic agents in a nation. It reflects the intertemporal decisions of domestic and foreign residents relating to their savings, investment, fiscal and demographic factors. It therefore conveys important information about actions and expectations of market participants in an open economy through its movements.

This study limits itself to the sustainability of current account deficit because current and past deficit are serviced using official reserves, which are in limited supply. This brings forth the need of monitoring and, if possible, reduction of deficit lest a situation arises in future where the reserves are depleted. The motivation to study Kenya's current account sustainability is particularly due to the following. First, the size of the deficit relative to GDP in recent years has risen to as high as 18.7 per cent of GDP in 1998, and has continued to rise unabated since the last surplus in 2003 to a high of 11 per cent of GDP in 2012. Second, the country suffers low income and savings, indicating deficits are high due to high consumption and low savings. Third, the country has high external debts, which put a threat to Kenya's sovereignty. Fourth, instability in the foreign exchange rate threatens Kenya's international competitiveness and finally, there is a relatively unchanged balance of payment structure, which raises doubt over future sustainability of the CAB.

Empirical literature on current account sustainability for Kenya is scarce, save for its inclusion in panel regressions. This study therefore seeks to evaluate Kenya's case individually. It draws from time series analysis to directly interrogate the existence of a long run steady state or lack thereof of Kenya's imports and exports. An inquiry into its sustainability will raise policy issues aimed at improving the stance of the current account moving forward. It will also be an addition to the wealth of information on Kenya's current account, thereby forming a basis for further investigation.

1.6   Scope and Limitations of the Study

This study recognizes that there are several approaches to the determination of the current accounts sustainability. However, it restricts itself to the use of intertemporal approach to exports and imports. In addition, the study makes an assumption that world interest rates are stationary, while the expenditure on exports and imports are nonstationary processes in the model. This study will

therefore not explore the consequences of non-stationary world interest rates, even though this may happen from time to time. The limitation of this study is the lack of agreement between data by the World Bank, IMF and National Bureau of Statistics. The World Bank data base will be preferred because it reports all the needed components of the account and gives a larger sample, besides its being used in majority of literature on this subject the world over.

2. Literature Review

2.1 Theoretical Literature

Theoretically, different authors have used varied approaches in determining the sustainability of current account deficit. However, they concur that the use of different structural indicators of the state of the current account allow us to consider a broader set of factors than those that can be encompassed in any single testable state of the current account model. However, structural indicators deny us the opportunity to provide a quantitative assessment of factors impinging on the sustainability of the current account deficit. According to Milesi-Ferretti and Rizin (1996a), this approach further compliments the testing of the empirical models. Traditional financial market indicators may not predict the rising of the deficit to a crisis proportion according to Frankel and Rose (1996), Goldstein (1996), Kamisky and Reinhart (1996) and Milesi-Ferretti and Rizin (1996). This therefore reinforces the need for an empirical inquiry into the sustainability of the current account to act as an early warning indicator to help predict the emergence of a crisis.

According to Melesi-Ferreti and Razin (1996a), three different yet interrelated concepts about the current account stand out: an economy's solvency, current account sustainability, and current account deficit excessiveness. To begin with, an economy is solvent if the present discounted value of the future trade surplus is equal to the current external indebtedness. Second, current account is sustainable if the continuation of the current government policy stance and/or of the present private sector behaviour will not entail a need for a 'drastic' policy shift or a balance of payments/currency crisis. Finally, an unsustainable deficit is defined as a deficit that is too large to be explained in terms of any given model of consumption, investment and production. Indeed, the notion of 'excessive' current account deficit is based on deviations from an 'optimal' benchmark, which can be calculated under some strict assumptions such as perfect capital mobility and efficient financial markets.

Mann (1999), on the other hand, describes an unsustainable current account as one whose disequilibrium instigates, by its own forces, a hike in interest rates, a large depreciation or some other sudden domestic or global economic disruption. In other words, a current account balance is sustainable when the continuation of the current policy stance will not require a "drastic" shift or a "sudden stop" (e.g. a sudden tightening of monetary and fiscal policy, causing a large recession), or lead to a "crisis" (e.g. sharp increases in interest rates, a sudden depletion of the reserves or an exchange rate collapse). Mann (1999) argues that a current account deficit greater than 4.2 per cent of GDP is unsustainable. This estimate,

based on the 1980s and early 1990s, represents the average threshold at which current account deficit in several industrialized economies started to narrow after trending up for a sustained period. Unfortunately, few other analysts have offered estimates of the sustainability threshold. While the forces mentioned by Mann are observed mostly in bleach, to the extent of the threshold being surpassed by more than five times, one would be tempted to hastily pass Kenya's debt as unsustainable. However, Holman (2001) highlighted that a large current account deficit is not the sole propagating factor behind dramatic reversals in capital flows.

Literature on the sustainability of current account deficit is at best divided on whether deficits are sustainable in the long-term or not. According to Summers (1996), it is unlikely that any country can, over a long period of time, borrow more than 5 per cent of its GNP annually unless it is growing at a very rapid rate. According to Corden (1994), a country can run a current account deficit for a limited period, but no huge deficit is sustainable indefinitely. Blanchard and Milesi-Ferreti (2011) proposed that a large current account deficit raises the risk of a sudden stop, where the inflow of capital coming into a country is reduced significantly in a very short period of time. Experience has shown that these episodes too often lead to large financial disruptions. On the other hand, Frankel and Rose (1996) found no systematic evidence of a link between current account deficits and currency crises. It is important to note that Frankel and Rose (1996) cite evidence of Singapore, which ran a deficit of over 20 per cent of GDP, but was growing at a rate of 8.6 per cent per year.

According to Baharumshah *et al.* (2004), a sustainable current account represents a stable state in which deficit generates no forces of its own to change its course. This means that a large and persistent current account deficit tends to pose more problems on the economy, necessitating a policy response. Specifically, they increase domestic relative to foreign interest rates, while simultaneously imposing an excessive burden on future generations as the accumulation of larger debt would imply increasing interest payments, thus a lower standard of living. In the end, a deficit provides a signal of macroeconomic imbalance, calling for devaluation and/or tighter macroeconomic policies.

According to Ghosh and Ramakrishnan (2012), the current account can be looked at from two angles. First is the difference in value between exports and imports of goods and services. A deficit here means that a country is importing more than it is exporting, even though the current account includes net income such as interest on dividends and transfers from abroad such as foreign aid, which form only a small fraction of the total. When a deficit is measured this way, then the deficit realized implies an underlying competitiveness problem for a country's exports.

Alternatively, a current account balance can be measured as the difference between savings and investment (both private and public). The deficit is either sourced from low savings or from high investments. This source of deficit may not indicate much of a problem to capital poor developing countries, with many investment opportunities. The current account reflects the intertemporal decisions of a nation (borrowing today to repay in future). In this case, a country running a deficit is usually building up liabilities to the rest of the world, which are usually expected to be repaid latter. This means that the borrowing country needs to invest in projects with high returns to pay back the debt and interest in future, failure to which the account becomes intertemporally insolvent. The amount of borrowing is assumed to be used for plugging the saving-investment gap. This nature of deficit shows an underlying policy problem such as a reckless fiscal policy, a consumption binge or it could reflect an intertemporal trade shift resulting from a temporary shock or shifting demographics.

A variety of methods have been used in literature to assess the sustainability of the current account deficit, among them the accounting approach, the intertemporal optimal approach and the structural assessment of indicators. According to Hudson and Stennet (2003), the accounting approach focuses on a particular ratio, typically debt to GDP, so that a deficit is assumed to be sustainable if it remains a constant fraction of GDP or exports. It aims at maintaining the growth rate of debt lower than GDP or exports. It bases the external indebtedness of a country to an economy's net liabilities, so that the financing constraint is the function of the interest rate of previous terms loan and the net liabilities. The budget constraint in *I* in this case becomes:

$$B_t = (1 + i_t)B_{t-1} - (X_t - M_t) \tag{2.1}$$

where B_t represents debt and *X-M* the trade balance, so that if the trade balance equal zero, the country's debt will grow at a rate equal to i_t. If a country runs a deficit, the debt stock will grow at a rate that exceeds the world interest rates. The above expression can be manipulated to give the sustainability condition which becomes:

$$\left(\frac{i_t - g_t}{1 + g_t}\right)b_{t-1} - (x_t - m_t) \tag{2.2}$$

Again, if the trade balance (x_t-m_t) is zero, then the change in debt is dependent on the growth rate of GDP and the interest rate of the debt. In this case, g_t represents the growth rate of GDP and the lowercase letters represent the growth rates too. If the domestic growth rate is less than the interest rate on external liabilities, the debt to GDP ratio will increase. This will need a surplus to offset the growth in the debt stock as a result of the interest rate and growth rate differential. The accounting approach comes with the advantage of usefulness in assessing

the consistency among the various macroeconomic policy targets, but with a shortcoming of assuming that debts must grow at the interest rate of over GDP differential. This way, it ignores the role of lenders and investors in determining the economies liabilities.

The intertemporal approach, also called the present value approach, is the model used most often since 1980, and has generated various versions. The main thrust of this model is that a current account is assumed to be sustainable if it is able to satisfy its long-run intertemporal constraint without necessitating drastic change in the private sector behaviour or policy shifts. This model combines the advantage of allowing various elements of the current account to be considered. First, it realizes the current account balance is an outcome of optimizing behaviour of agents in the economy. Second, it accommodates the behaviour of economic agents by allowing them to react to government expenditure or investment and not assuming imbalances are a result of structural imbalances. Third, the current account is allowed to point towards the desired growth path of the economy by indicating either higher growth to help service the debts or a lower growth, while receiving savings lent to outsiders. Fourth, the approach uses the sustainability criterion which, according to Camarero *et al.* (2009), is a sufficient condition for other conditions to hold as opposed to the reliance of the solvency condition, which is less demanding.

According to Osakwe and Verick (2007), there is no simple definition of an unsustainable deficit. Unsustainable current accounts can be found by analyzing the current account deficit together with other structural indicators of sustainability as discussed in the literature, especially Milesi-Ferreti and Razin (1996a), which is summarized in Table 2.1.

While conceding to the use of these structural indicators to serve in identifying some of the weaknesses of a country's current account, Sasin (2001) stated that long-run sustainability ratios computed using a theoretical framework could be misleading, and it is in fact hard to conclude whether, in the short-run, the current account deficit is truly excessive. Therefore, he cautioned against the use of the theoretical approach exclusively to determine the sustainability of current accounts. Furthermore, according to Camarero *et al.* (2009), the policy formulations at the central banks, government organizations, International Monetary Fund and the World Bank require an empirically tractable and econometrically estimable model to verify the theoretical propositions.

Table 2.1: Structural indicators of current account sustainability

	Indicator	Criteria
1	Current account balance (trade deficit/GDP)	Current account deficit resulting from the trade component often indicate structural competitiveness problems, hence an indicator of sustainability
2	Savings to GDP ratio	Low domestic savings to GDP ratios imply that the deficit is not financing future economic growth
3	(FDI) (% of GDP)	FDI is a more sustainable way of financing current account deficit than other forms of capital flows such as portfolio investment so that low foreign direct investment denotes unsustainable repayments
4	Economic growth rates	Low economic growth rates imply that future prospects for paying off debt are not strong
5	Debt service to GDP, debt service to exports, and total debt to GDP ratios	If debt levels are high and unsustainable, it is difficult for an economy to continue to maintain a current account deficit
6	Poor governance	Poor governance leads countries to implement poor macroeconomic policies, which are needed to correct imbalances

2.2 Empirical Literature

According to Camarero *et al.* (2009), an empirical assessment of the current account follows two paradigms. First, the intertemporal solvency approach, which seeks to answer whether all the debts incurred will ultimately be repaid. This is equivalent to saying that large trade deficits today will be offset by equally large trade surpluses in some future periods. This would mean that a country can remain technically solvent so long as it makes the necessary policy adjustments needed in future to bring the requisite surpluses that enable the debts to be repaid. This is a weak approach, which can be blamed for imposing too few restrictions on the current account based on solvency alone. On the other hand, is a sustainability criterion which adds over and above solvency the requirement that policies remain constant in the indefinite future. This would therefore mean that under the assumption that policies do not change, the country does not violate its intertemporal budget constraint.

The intertemporal approach theoretical framework views the current account as a change in the net foreign asset position of a country. It is founded on utility maximizing decisions by economic agents. Large deficits, according to the intertemporal approach, can be optimal and sustainable and, therefore, not a cause of concern for policy makers. It proposes that saving and investment decisions result from forward looking calculations based on the expected values of various macroeconomic factors. It achieves a synthesis between the trade and financial flow perspectives, by recognizing how macroeconomic factors influence future relative prices and how relative prices affect saving and investment decisions (Obstfeld and Rogoff, 1995).

Husted (1992) used the Engel cointegration test on several measures of US exports and imports between 1968 and 1988 to find that the US current account deficit was unsustainable in the long-term horizon. This meant that the US debt had the potential to grow unabated for the long haul as a proportion of economic activity. He found a strong relationship between exports and imports. In summary, the US violated its intertemporal budget constraint and in the long-term, it risked running into a financial crisis.

Konya (2008) used the intertemporal optimal approach to evaluate the sustainability of the current account in three central European countries, the Czech Republic, Hungary and Slovenia since they became market economies. Based on the various unit root and cointegration tests on the shares of real exports and imports to real GDP, the study concluded that the Czech Republic and Slovenia were not in violation of their intertemporal budget constraint and their trade imbalances were sustainable. The import export measures of Hungary were not cointegrated and were therefore unsustainable.

Wu *et al.* (2001) applied panel cointegration tests to examine the long run relationship between exports and imports among the G7, thereby the sustainability of the current account to support the existence of a long-run equilibrium between exports and imports. This finding indicates that current accounts are not sustainable in the long run.

Kunhong *et al.* (2001) used the intertemporal optimization model to evaluate New Zealand's CAB solvency. He found that despite substantial deterioration in New Zealand's current account deficit during the late 1990s, its current account movements over the sample period as a whole have been consistent with its intertemporal budget constraint. The research concluded that the formal external solvency condition had been satisfied, and that the current account balance predicted by the simple intertemporal optimization model used satisfactorily reflected the actual directions and turning points for the consumption smoothing component of the current account. On the sensitivity of the results to the

decomposition between the consumption-tilting and consumption-smoothing components, the two were found not to alter their results in any material way. The variance ratio of the model implied that the current account series was consistent with "no excess volatility" in international financial capital movements for consumption- smoothing purposes.

Using the intertemporal optimal approach, Baharumshah *et al.* (2004) examined the issue of sustainability of current account imbalances in eight East Asia countries using dynamic OLS (DOLS), and the latest developments in nonstationary panel data analysis to find out that the current account deficit were not on the long-run steady state in the pre-crisis era (1970-1997), hence the current accounts of Asia-8, during this period, were unstable and did not move towards external account equilibrium. However, strong co-movements between exports and imports were found in the extended sample period that included the post-crisis period (1970-2000). This result indicated that large currency depreciations and the economic recovery helped to bring back the Asia-8 economies on a sustainable path. These findings, he recommended, were a strong indicator that an analysis of current account deficit may be used as an indicator (or warning signal) in predicting future crises.

Holmes *et al.* (2007) used the panel unit root technique to test the sustainability of the current accounts of 21 countries comprising 15 countries in the Euro zone and 8 major economies in the world. The research found the overall accounts unsustainable with those in the euro zone sustainable in the long run, while in the non-EU countries, the sustainability was rejected. To him, the trade partners with the EU in this study being unsustainable meant that these economies could end up putting the EU under pressure.

Osakwe and Verick (2007) used various structural indicators and the Probit model on the indicators of 18 Sub-Saharan African countries to find that countries such as Seychelles, Mali, Zambia, Mozambique, Lesotho and Gambia as those in which the current account deficits are sustainable. Countries such as Burundi, Burkina Faso, Rwanda and Togo were identified as those with an unsustainable current account deficit.

Perera and Varma (2008) investigated the long-run relationship between Sri Lankan exports and imports during the period 1950 to 2006, using unit root tests and cointegration techniques that allow for an endogenously determined structural break. The results failed to support the existence of a long-run equilibrium between exports and imports in Sri Lanka. This finding questioned the effectiveness of Sri Lanka's current long-term macroeconomic policies and suggested that Sri Lanka is in violation of its international budget constraint.

Ramona and Razvan (2009) investigated the sustainability of the CAB using the autoregressive moving average ARIMA approach to find that Romania's current account was unsustainable both for the variables involved and the residuals resulting from the model regression. The approach used here was different in that they analyzed the cointegration between the credit transactions of the current account instead of the exports, and the debit transactions of the current account instead of the imports. The two were not cointegrated and, therefore, unsustainable current account.

Brissimis *et al.* (2010) used the intertemporal approach to treat the current account as the gap between domestic saving and investment to investigate the main macroeconomic, financial and structural factors that shaped current account developments in Greece over the period from 1960 to 2007, and relate these developments to external sustainability. They examined the behaviour of the current account in the short and long run, using the cointegration analysis to find that a stable equilibrium current account model could be derived, if the ratio of private sector financing to GDP, as a proxy for financial liberalization, was included in the specification. Policy options to restore the country's external sustainability were explored based on the estimated equilibrium model. However, the same test for data between the years 1999 to 2007 found the Greek current account unsustainable.

Greenidge *et al.* (2011) investigated the sustainability of the current account of Barbados by merging the popular Husted (1992) testing procedure with recent econometric analysis. In their analysis, they used the error correction model to separate the short-run effects from the long-run effects and use the errors resulting from the independent variable, in either case, to see if correction, either from imports or exports, would work. The procedure utilized here was to estimate cointegration between exports and imports plus net transfer payments and net interest payments, allowing for structural breaks. Cointegration tests based on both the Johansen and dynamic ordinary linear regression (DOLS) approaches support the existence of long-run equilibrium between real exports and imports, with a cointegrating factor not significantly different from 1. The empirical findings suggested that the current account for Barbados had in fact been sustainable and did not violate its intertemporal budget constraint. Another significant finding was that the stable long-run relationship between real exports and imports is defined as one where deviations from this equilibrium were corrected in the short-run by imports, making the adjustment. Thus, policies to curb aggregate demand were effective in pushing the economy towards achieving external balance in the short-term, while policies to boost exports are more suited towards the medium and long-term planning.

Tiwari (2012) examined the long-run relationship between oil and non-oil exports and imports, so as to identify whether the current account deficit in India was sustainable using cointegration analysis, with structural breaks (as unit root analysis of both variables showed that these variables have been subject to structural changes). The study found that there was a strong evidence of a long-run relationship between non-oil exports and imports, and no evidence in the case of oil exports and imports.

Heidari *et al.* (2012) while investigating a long-run relationship between exports and imports of the Iranian economy by using bounds test approach found the existence of long run equilibrium relationship between imports and exports between 1960 and 2007. This meant that the current account was sustainable and that they converge at some time in future.

Bildirici and Kayıkçı (2012) used the Markov Switching Model which allowed them to distinguish periods that are associated with unsustainable outcomes from those in which the solvency condition holds. Their findings were that the probability of switching from unsustainable regime to the crisis is so small that the economy can stay in the sustainable path for a long time. Explanation of this situation was seen to lie in the definition of the Markov switching process where countries might satisfy the solvency criterion, but faced with important short run imbalances which may become high enough to violate solvency in the future. When the long-run sustainability condition is satisfied, the presence of temporary deviations from this condition provides a danger that a country may most likely be faced with debt problems in the future. This research found there would be a progression from sustainability to unsustainability to crisis. The duration of the unsustainable regime was longer than the other regimes, indicating that the economy can stay in the unsustainable path long enough without violating the solvency condition. However, the longer the economy stays in these periods, the more likely that they end up with a balance of payments crisis. It found that, according to the time profiles of the regimes, Turkey seemed to have been in a crisis regime since the first quarter of 2010, meaning that an economic crisis was expected in a year's time.

2.3   Overview of Literature

From the preceding discussion, there is a cost to be paid by an economy that continually accumulates deficits. On the other hand, deficits which do not progress to prove unsustainable and eventually lead to a crisis need not generate any fear. However, determining the sustainability or unsustainability of a current account is of vital importance as it will inform the opinion of lenders, while evaluating the continuation or correction of the current policy stance.

It is also clear that there are a variety of methods of assessing the sustainability of the current account. First, the review brings to the fore observation that the use of structural indicators to evaluate a current account could be misleading, especially where the forces generating deficits are not inherent in the structure of the account, besides not telling whether the account is truly excessive. Second, the accounting approach has an advantage of assessing consistency in macroeconomic policy, but is mainly recommended for evaluating the internal debt. This leaves the intertemporal optimal approach as the most likely to evaluate the sustainability of external balances, mainly because it uses all the components of the current account to analyze sustainability. Baharumshah *et al.* (2004) observes that "the claims that the current account is sustainable if exports and imports are cointegrated with the cointegrating vector being (1, -1) is, by now, a widely accepted theory." Thus, this study agrees that the choice method in assessing the sustainability of the current account involves testing for cointegration of these key components of the current account.

3. Methodology

3.1 Analytical Framework–The Model

The theoretical underpinning of this study is based on the intertemporal optimization approach as used by Konya (2008), and Trehan and Walsh (1991). This approach is preferred since it incorporates the various elements of the current account directly, allows the growth rate of GDP to be incorporated into the model, allows for incorporation of utility maximization decisions of economic agents, and uses the sustainability criterion, which is a sufficient condition for other conditions to hold. The proposition of this approach is that if real exports and imports are integrated of order one, then cointegration between them is a necessary and sufficient condition for the economy to satisfy the intertemporal budget constraint. It pursues a long-run relationship between time series Kenyan exports to establish that the two series would not drift too far apart.

The theory behind this is illustrated by the use of a hypothetical household living in a small open economy that produces and exports a single composite good and has no government. The household is able to borrow and lend in the international markets using one-period financial instruments, faces a given world rate of interest, and is assumed to maximize lifetime utility subject to budget constraints. The household's resources are composed of endowments of output and redistributed profits from firms. These resources are used for consumption and savings. The current period budget constraint of this household is given by:

$$C_t = Y_t + B_t - I_t - (1 + r_t)B_{t-1} \qquad (3.1)$$

where C_t denotes current consumption; Y_t is output; I_t is investment; r_t is the interest rate per period; B_t is net borrowing (borrowing minus lending), which could be positive or negative; and $(1+r_t)B_{t-1}$ is the initial debt of the representative household, corresponding to the country's external debt.

Since equation (3.1) must hold every time period, the period-by-period budget constraints can be solved forward to form the economy's intertemporal budget constraint expressed as:

$$B_t = \sum_{i=1}^{\infty} \mu_i (X_{t+i} - M_{t+i}) + \lim_{n \to \infty} \mu_n \beta_{t+n} \qquad (3.2)$$

where $(X_t - M_t = Y_t - C_t - I_t)$ is the trade balance in period t, that is exports minus imports also equal income less absorption and $\mu_t = \prod_{j=1}^{i} \dfrac{1}{1 + r_{t+j}}$ (the product of the first i discount factors).

The important aspect of equation (3.2) is that assuming the last term $\lim_{n \to \infty} \mu_n \beta_{t+n}$ equals zero, the amount that a country borrows or lends in international

markets equals the present value of the future trade surpluses or deficits, that is the discounted value of the expected future stock of debt converges to zero as the time horizon goes to infinity. If this was not the case and if B_t is positive, then the country is "bubble-financing", borrowing too much to repay its maturing debts using new loans. If B_t is negative and the limit is non-zero, the country is making pareto, inferior decisions, welfare could be raised by lending less. Therefore, the issue at hand is whether the data are consistent with $\lim_{n\to\infty} \mu_n \beta_{t+n}$ (Husted, 1992).

To arrive at a testable empirical model, and assuming that the world interest rate is stationary with unconditional mean *r*, then equation (3.1) can be rewritten as:

$$X_t - M_t = Y_t - C_t - I_t = -B_t + (1+r_t)B_{t-1}$$

$$M_t + (1+r_t)B_{t-1} + rB_{t-1} - rB_{t-1} = X_t + B_t$$

$$M_t + (r_t - r)B_{t-1} + (1+r_t)B_{t-1} = X_t + B_t$$

Rearranging the equation for B_t and letting $Z_t = M_t + (r_t - r)B_{t-1}$, equation 1 can be rewritten as:

$$B_t = Z_t - X_t + (1+r)B_{t-1}$$

$$B_{t+n} = \sum_{j=0}^{n} (1+r)^{n-j}(Z_{t+j} - X_{t+j}) + (1+r)^{n+1}B_{t-1} \tag{3.3}$$

From this expression and letting *n* approach infinity where $\mu = \dfrac{1}{1+r}$ then:

$$B_{t-1} = \sum_{j=0}^{\infty} \mu^{j+1}(X_{t+j} - Z_{t+j}) \lim_{n\to\infty} \mu^{n+1}\beta_{t+n} \tag{3.4}$$

By expanding the above expression and rearranging, we have:

$$Z_t + r_t B_{t-1} = X_t + \sum_{j=1}^{\infty} \mu^j(\Delta X_{t+j} - \Delta Z_{t+j}) + r\lim_{t\to\infty} \mu^{n+1}\beta_{t+n} \tag{3.5}$$

Assuming that X_t and Z_t are random walks with a drift:

$$X_t = \alpha_1 + X_{t-1} + \varepsilon_{1t}$$

$$Z_t = \alpha_2 + Z_{t-1} + \varepsilon_{2t} \quad \varepsilon_{1t}, \varepsilon_{1t} : I(0)$$

So that they are integrated of order one *I(1)* and noticing that $0 < \mu < 1$ yields

$$+ r_t B_{t-1} = X_t + \sum_{j=1}^{\infty} \mu^j\{\alpha_1 - \alpha_2 + \varepsilon_{1,t+j} - \varepsilon_{2,t+j}\} + r\lim_{t\to\infty} \mu^{n+1}\beta_{t+n}$$

$$= X_t + \frac{\alpha_1 - \alpha_2}{r} + \sum_{j=1}^{\infty} \mu^j\{\varepsilon_{1,t+j} - \varepsilon_{2,t+j}\} + r\lim_{t\to\infty} \mu^{n+1}\beta_{t+n} \tag{3.6}$$

From the definition, $Z_{t\,on}$ the left hand side of equation (3.5) is equal to $M_t + r_t B_{t-1}$. Note that by subtracting on both sides of the equation, then multiplying the whole expression by minus one, the left hand side becomes the current account balance. Thus assuming that the limit term equals zero and letting:

$$\alpha_0 = \frac{\alpha_1 - \alpha_2}{r}, \quad \alpha_1 MM_t = M_t + r_t B_{t-1}, \varepsilon_t = \sum_{j=1}^{\infty} \lambda^j(\varepsilon_{1,t+j} - \varepsilon_{2,t+j}).$$

Equation 3.5 yields the following simple linear regression model of exports X_t on the sum of imports and interest rate payments on debts MM_t;

$$X_t = \alpha_0 + \alpha_1 MM_t + \varepsilon_t \tag{3.7}$$

3.2   Model Specification

Following Hakkio and Rush (1991), the above model can be tested in ratio form as:

$$\left(\frac{X_t}{Y_t}\right) = \alpha_0 + \alpha_1 \left(\frac{MM_t}{Y_t}\right) + \varepsilon_t \tag{3.8}$$

where X_t is exports of goods and services, MM_t is imports of goods and services minus net factor incomes and net unilateral transfers, and X_t-MM_t=CA. Given $\left(\frac{X_t}{Y_t}\right)$ and $\left(\frac{MM_t}{Y_t}\right)$ are non-stationary variables, failure to detect cointegration between them would indicate that the economy fails to satisfy its long-run budget constraint and, therefore, is expected to default on its external debt according to Hakkio and Rush (1991). If, however, exports and imports are cointegrated, that is ε_t is an *I(0)* process, and moreover (α_0, α_1) is (*0, 1*), then this would mean external debt sustainability because, in this case, the current account would be balanced. If exports and imports are co-integrated, but $\alpha_1 < 1$ or $\alpha_0 \neq 0$ and $\alpha_1 = 1$, then the current account is out of balance and the debt is unsustainable and can increase without bound.

3.3   Data Types and Sources

In this study, annual frequency data spanning from 1975 to 2011 for Kenya was utilized. The World Bank data base was used to source data for the current account between the years. This data was preferred for two reasons. This research considered a single country, which previously had been used in panel cointegrations, which used the same data. It would also give an opportunity to compare the outcome when used as a stand alone. The exports, as a fraction of GDP, and the imports, as a fraction of GDP, were both available in this database from the year 1975, which is earlier than the one available on IMF and UNCTAD databases in 1980.

3.4   Diagnostic Tests

Before the analysis of the data was done, various diagnostic tests were conducted to ensure that the time series properties of the data were not violated in the estimation. Unit root tests were conducted in the form of Augmented Dickey Fuller (ADF) test and the Phillip Perron (PP) test. The test for cointegration used the Jacobsen-Juselius test.

3.5   Data Analysis

The study analyzed two objectives. First, to determine the state of sustainability of the current account; and two, to determine the policy recommendations that would help improve the current account.

The first objective was achieved by doing the cointegration analysis to determine whether a long run relationship existed, which would then inform the policy options to be pursued. The decision criteria in form of policy was that if a long run relationship existed, implying sustainability, then the current policy stance would be upheld, since the intertemporal constraint was met. However, should a long run relationship not exist, then there was need to change the policy stance.

4.   Empirical Results and Discussions

4.1   Unit Root Tests

The unit root tests showed that raw data were nonstationary at levels as shown in the Table 4.1.

*Since the ADF and the Philip Peron test statistics are less than their respective

Table 4.1: Unit root tests at levels

VARIABLE	ADF test statistic	ADF critical values		Phillip Peron statistic	PP critical values		Conclusion
EXPORTS/ GDP	-2.89	1% 5% 10%	-3.64 -2.95 -2.61	-2.86	1% 5% 10%	-3.64 -2.95 -2.61	NONSTATIONARY
IMPORTS*/ GDP	-2.69	1% 5% 10%	-3.64 -2.95 -2.61	-2.69	1% 5% 10%	-3.64 -2.95 -2.61	NONSTATIONARY

critical values, the variables are nonstationary at 1% and 5% level of confidence.

All variables were found to be nonstationary at levels. This called for a need to establish the level order of integration of the variables in readiness for cointegration tests, since using them in their current state would give spurious results.

*Since the ADF and the Philip Peron test statistics are greater than their respective critical values, the variables are stationary at 1% and 5% levels of confidence.

All the variables were stationary at first difference as shown in Table 4.2. This meant that the variables are integrated of order one I(1). This opened the door to cointegration analysis.

Table 4.2: Unit root tests at first difference

VARIABLE	ADF test statistic	ADF critical values		Phillip Peron statistic	PP critical values		Conclusion
EXPORTS/ GDP	-5.65394	1% 5% 10%	-3.64 -2.95 -2.61	-9.305271	1% 5% 10%	-3.64 -2.95 -2.61	STATIONARY
IMPORTS*/ GDP	-8.065679	1% 5% 10%	-3.64 -2.95 -2.61	11.19372	1% 5% 10%	-3.64 -2.95 -2.61	STATIONARY

4.2   Cointegration Test

Having found the presence of a unit root but that variables were integrated of the same order, a cointegration test for the two variables was done. The result for exports/GDP and imports/GDP at first difference is as shown in Table 4.3.

The results present evidence for lack of a cointegrating relationship between Kenya's imports and exports in the study period. There are several implications of this result. To begin with, there is no long-run relationship between the exports and imports for the period under investigation. Second, lack of this relationship implied lack of a steady state in the near future, and further meant that exports would not eventually finance the imports nor pay the international debts owed. This result indicated a situation that would call for the devaluation of the currency to attract foreign currency in a managed float, but in a free float it was expected that the exchange rate would most likely shoot due to high demand and little supply through sales abroad.

4.3   Synthesis of the Results

The primary objective of this study was to investigate empirically the sustainability of the current account in Kenya. In keeping with most studies done in the recent past in the world over on this subject, the intertemporal approach was employed.

The results of the analysis lead to several interesting conclusions. First, for the period under investigation, the intertemporal condition is violated. This means the balances were expected to rise to a crisis level. The policies that were implemented in the period of study needed review. Lack of a policy action to correct this anomaly would lead to the propagation of an environment conducive for a crisis.

The second implication is that the current account being on an unsustainable path was expected to default on its debt. Kenya's deficits occur for long periods, with rare and small surpluses. This result was a confirmation that the continuation of current policy stance would be unable to turn the large deficits evidenced in the period into enough surpluses to cover the deficits.

Table 4.3: Unrestricted cointegration rank test (Trace)

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None	0.262783	13.31652	15.49471	0.1037
At most 1	0.083130	2.950833	3.841466	0.0858

Trace test indicates no cointegration at the 0.05 level

Third, Kenya's deficit spring from two sides; the imports exceed the exports and the savings are less than investment. This implies that the account suffers both competitiveness problems and wrong fiscal policies.

Finally, violation of the sufficiency condition for sustainability implies that a large persistent current account deficit may precipitate a crisis. This means that these results predict the occurrence of a financial crisis. This further means that the policy applications arising from this realization need to be addressed soonest to avert the crisis from happening.

5.   Conclusion and Policy Implications

5.1   Summary and Conclusion

This study estimated the sustainability of Kenya's current account deficit using the intertemporal approach. The main objective of the research was to investigate the sustainability of the deficit, following economic variables and method proposed by theoretical and empirical literature.

The theoretical background to the analysis was provided by a simple model of current account sustainability proposed by Konya (2008). This model ensures that if the proportions of real exports and real imports to GDP are integrated of order one, then cointegration is a necessary and sufficient condition for the economy to satisfy its intertemporal budget constraint.

The analysis consisted of two stages where the unit root tests for the time series was conducted using the Phillip Perron and Dickey Fuller methodology, then the cointegration test followed using the Johanssen procedure. The unit root tests confirm that the time series data was integrated of the same order (order one) for the two tests applied. On the other hand, results of the cointegration estimation indicate that Kenya's current account deficit is unsustainable in the long-run.

The results therefore indicate that in terms of exports and import ratios to GDP, Kenya's current account is in violation of its intertemporal budget constraint, and therefore its current account deficit is unsustainable.

5.2   Policy Implications

This study finds that the current account deficit is unsustainable. This, alongside the foregoing policy failures, implies that a variant approach to handling of the deficit needs to be employed. Besides this, the results show that the deficit springs from huge imports compared to exports. The finding that the deficit is unsustainable also points to the need for a paradigm shift from what has been the policy approach so far in terms of the deficit, with a view to improving its sustainability.

Arising from the finding that the deficit arises from imports exceeding exports means that first and most basic, Kenya needs to sell more abroad than it has done so far. This also means that the country needs to address the competitiveness of her exports to curve a better niche for her sales to the world market. To do this, value addition activities of Kenya's export sector should be prioritized, so that the share of high value exports in total exports can improve. This policy means that even in her traditional exports, the country should enforce that only processed

goods at least to some point, should be sold. This would put to rest the issue of blending Kenyan coffee and tea by foreigners and then making more money than local producers.

There is need to evaluate whether the tax relief measures for capital, especially heavy machinery, are really serving the intended purpose. This is because while the country looses a lot of revenue by granting tax incentives, there seems not to be a corresponding increase in the volume of exports. To this end, tax relief could be offered at the point of export, rather than at the point of import. This would not only minimize corruption where other goods are shipped in as machinery, while they actually are not, ensuring that those doing the good work of producing for export get the advantage intended by these incentives.

 The greatest resource Kenya has is her human resource. Turning around the fortunes of the current account is going to call on the high quality knowledge and skills sourced from research and development. Training the labour force to improve skills in the workforce will ensure continued production of competitive goods. This calls for more research and development both in formative years of training and tertiary institutions. This training should not only focus on producers targeting exports, but also mainstreaming training in the education system. A good way is to ensure development of incubation centers in tertiary institutions, targeting ideas that can generate exports and give incubates an opportunity to export their products at concessionary rates. Technical training to improve methods of production should be upheld even in middle level colleges.

One of the entries whose contribution stands out for the current account is remittances from Kenyans working abroad. This underlines that if Kenyans can sell more skills abroad even while at home, the current account would improve. This way, business process outsourcing becomes an idea whose time for implementation and scaling up has come. If a Kenyan can invent mobile money transfer, there must be a way Kenyan services can be outsourced by the international market for much needed foreign exchange. Training people on how this works and the gains therein would go a long way in fast tracking its implementation. This would not only be a big step towards meeting the Vision 2030 objective, but it would also minimize the deficit.

The savings and investment gap in Kenya is big and calls for correction. There is need to increase private savings to meet the demand for local investment and reduce foreign debt. This can be done through better development of formal and informal finance markets, and development of more attractive financial instruments to attract savings. Key towards this is a reduction of population growth rate by increasing the scope of population control initiatives, which will

help lower dependency ratios in the country, and reduce government expenditure per child, thereby inducing private and public savings.

Unpredictable oil prices coupled with oil importation bills have been major contributors to the dire situation of the country's current account. The drive to move away from crude oil has made significant gains, but the demand for it is unwavering. This realization means that the time for expeditious exploration and exploitation of oil locally has come. There is need to hasten its harvesting, even as the nation develops potential for alternative sources of energy to fuel the economy.

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