Full Length Research Paper

Sustainability of the Malawian current account deficit: Application of structural and solvency approaches

Onelie Nkuna

Reserve Bank of Malawi, Convention Drive, Lilongwe 3, Malawi.

The objective of the paper is to examine the sustainability of current account in Malawi. The study employs econometric analysis and solvency approaches to complement each other. Results from both approaches confirm that Malawi's current account deficits were excessive and unsustainable during the period of 1980 to 2010. Results from the econometric analysis reveal that for Malawi's current account to move towards a sustainable path, particular attention should be paid to the following factors: external debt, terms of trade, openness, real exchange rate, net foreign assets and growth. Furthermore, the current account deficit was excessively above the norm, deviating by an average of 5.0% during the study period. The solvency approach to current account sustainability further confirms that the country was running an unsustainable current account deficit. Interestingly, even after the highly indebted poor countries (HIPC) relief, the current account was still unsustainable. In this regard, policies should ensure that the real exchange rate is not overvalued, growth is enhanced particularly in the export sector and also ensure that external debt is sustainable. These will ensure sustainable current account.

Key words: Current account deficit, external sustainability, Malawi.

INTRODUCTION

Persistent current account imbalances in many developing countries, Africa, Asia, South America, and recently in the US have excited considerable interest among economists and policymakers seeking to have a clear understanding of the role and importance of current account imbalances in macroeconomic issues. It is evident that a lot of countries, both developed and developing, have run persistent large current account deficits which have been followed by severe crises, economic slowdowns and contagion effects. Central to

the debate is the sustainability of those deficits. The question is whether a country's current account imbalances are justifiable and be considered as structurally normal and sustainable or whether there is need for fundamental policy shifts to correct them and evade crises. Researchers have come to a conclusion that there is no simple definition of an unsustainable deficit (Kaminsky et al., 1998).

In the recent years, the Malawi economy has been growing and striving to attain sustainable growth;

E-mail: onelienkuna@yahoo.co.uk.
JEL classification: F32

nevertheless, it is on track to meet most of the Millennium Development Goals (MDGS[1]). The current account balance, which predominates the behaviour of Malawi's balance of payments, has been in persistent deficits since the late 1970s. These deficits have been widening over time, with over 15% average of GDP for the past decade, and hit a low record of 26% of GDP in 2006 (Reserve Bank of Malawi, 2007). Official grants were not sufficient to offset the deficit as such the country borrowed extensively and externally to finance the deficit. Consequently, this also led to high interest payments, further worsening the current account balance. Nevertheless, there have been positive developments domestically on the export sector with the uranium mining and exports in the country. All these factors necessitate the need to find out the required level of current account deficit that would stabilize the current account or external debt. Conventional wisdom tries to explain that the current account is unsustainable by just focusing on the exchange rate and level of reserves (Milesi and Ferreti, 1996). But the questions are, '' what is the degree of unsustainability of these deficits?'' Have they been very excessive such that there is need for some drastic policy change or are they structurally justifiable? What are the critical factors to pay attention to in order to achieve sustainability and remain on that path? What would be the required level of deficits that the country should be aiming at, to remain sustainable?

As such the objective of this study is to examine the sustainability of the Malawi current account using the structural approach (International Monetary Fund, 2006) and solvency approach (Hudson and Stennett, 2003) for the period 1980 to 2010. The period has been chosen because at the beginning of the 1980s, the current account had significantly deteriorated. Specifically, the study aims to: (i) empirically ascertain whether the current account deficits the country has been running have been excessive or not and (ii) know the critical factors that the country should pay particular attention to in order to ensure the current account moves towards a sustainable path.

Results and policy implications drawn from this study will therefore provide critical input into the design and operation of a coherent and consistent policy framework that would guide policy makers to formulate policies that would lead to sustainable current account. This study therefore contributes to the existing literature on sustainability of current account.

---

[1]The Millennium Development Goals (MDGs) are eight international development goals that are to be achieved 2015. The goals are: Eradicating extreme poverty and hunger, Achieving universal primary education, Promoting gender equality and empowering women, Reducing child mortality rates, Improving maternal health, Combating HIV/AIDS, malaria, and other diseases, Ensuring environmental sustainability, and Developing a global partnership for development.

The concept of current account sustainability

The concept of current account sustainability has come to be of considerable interest among researchers in the aftermath of the Asian and South American crises of the 1990s and recently in the United States. These crises exposed the weaknesses of the existing theories of current account determination in explaining a country's external vulnerability. Following these crises, the then U.S. Deputy Secretary of the Treasury, Lawrence Summers stated that "Close attention should be paid to any current account deficit in excess of 5% of GDP." Thus any current account deficit above 5% should sound an alarm. Later on, Milesi and Ferreti (1996) argued that the traditional measures of sustainability based solely on a specific threshold on persistent current account deficits (such as 5% of GDP for three to four years) is not in itself a sufficiently informative indicator of sustainability, but should be augmented with other indicators.

Consequently, several authors have come up with different measures of sustainability. For instance, Mann (1999) defines current account deficit as being sustainable when continuation of current policy stance will not require a drastic shift or sudden stop (for instance, sudden tightening of monetary or fiscal policy which would cause a large recession) or lead to a recession (sharp increases in interest rates, a sudden depletion of reserves, or an exchange rate collapse). Whilst, Kaminsky et al. (1998) and McGettigan, (2000) have complemented the work of Milesi and Ferreti (1996) and have come up with a variety of indicators that they have used to empirically analyse the sustainability of different countries' current accounts. Furthermore, others have developed empirical models to assess the sustainability of current account.

This debate has made researchers to come to a conclusion that there is no simple definition of an unsustainable deficit. Literature has, in general, focused on the following approaches: the structural approach as by International Monetary Fund (2006) and Chinn and Prasad (2003); Brissimis et al. (2010); assessment of indicators as in Milesi and Ferreti (1996); Kaminsky et al. (1998); Binatli and Sohrabji (2008); Boljanović (2012); the solvency approach as in Nakamura and McPherson (2005); the accounting methodology as in Husted (1992) and Wu et al. (2001); and the inter-temporal optimal approach proposed by Obstfeld and Rogoff (1995) used by Opoku-Afari (2007) and others.

The evolution of Malawi's current account from 1980 to 2010

Figure 1 shows graphical trend of the current balance for Malawi. Following the oil shocks of late 70s, Malawi's current account significantly worsened, reaching 22% of GDP (including official grants) in 1980, in contrast to surpluses registered during the early 1970s. This
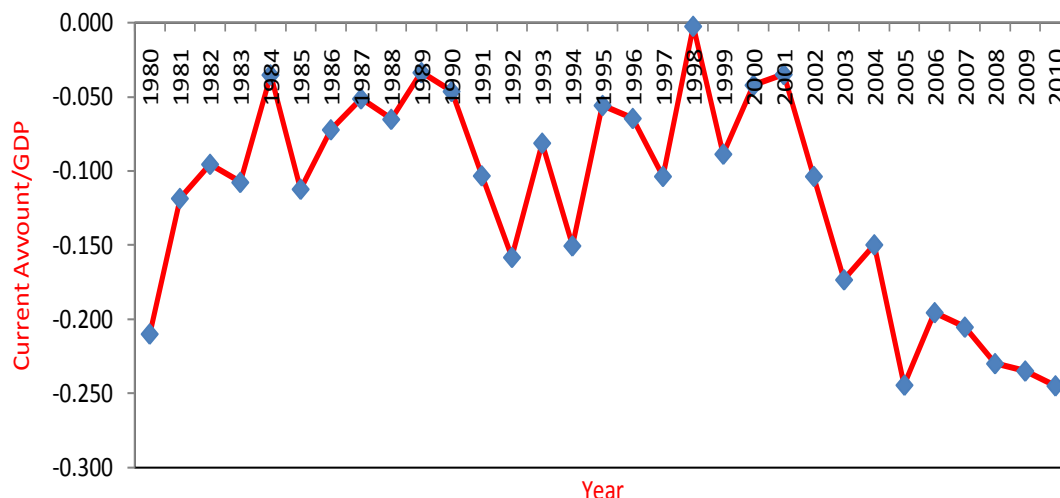
Figure 1. Current account balance (excluding grants) as a percentage of GDP, 1980-2010.
Source: Reserve Bank of Malawi.

wasdue to several factors: sharp decline in terms of trade, rising world interest rates and disruption of the traditional railway line to Nacala which carried the bulk of the country's imports and exports. This was compounded by loosened fiscal policy to contain the drought shock (Government of Malawi, 1982).

In response to the poor current account position experienced in the 70s, Malawian authorities took active exchange rates actions and devalued twice by 15% in April 1982 and 12% in September 1983. This exchange rate regime could not be sustained, as such in June 1984, the Kwacha was delinked to the SDR. It was pegged to a basket of trade-weighted currencies and was devalued by 15% on April 2, 1984 and further by 10% on August 16, 1986 (Silumbu, 1995). The current account balance, though still negative, generally improved during this period.

To deal with the worsening current account deficit, the country had to seek recourse to borrowing from the World Bank under the Structural Adjustment Loans (SAL) which was accompanied by Structural Adjustment Programs (SAPs)[2]. Among the reforms, the phased liberalization of imports in August 1988 was included (Mataya et al., 1998). Though the fiscal position had improved, it was still in deficit and so was the current account balance. As a result, authorities devalued further by 20% on February 7, 1987; and 15% more on January 16, 1988. The economy later recovered with output averaging 3.2% between 1982 and 1989, and foreign reserves reaching a high record of 6.7 months of imports (Government of Malawi, 1989).

Following the financing of the current account through external debt to GDP rose and averaged about 80% in the latter half of the decade, from very low levels in the external borrowing, external debt accumulated and reached about 80% of GDP in 1989. Consequently, previous decade. Debt service was absorbing 42% of export earning and about 10% of GDP. Interest burden on external debt reached as high as 5% of GDP in 1986 (Reserve Bank of Malawi, 1987).

From 1989 to 1992, the withdrawal of donor assistance on account of good governance coupled with severe drought led to the current account deficit widening significantly, reaching 15.8% in 1992. In response to the worsening current account balance, the local currency was devalued by 7% on March 24, 1990; 15% on 28 March 1992; and further 22% on July 11, 1992. Despite these devaluations, the current account position worsened than the previous five years. The economy went into recession again shrinking by 7.9% in 1992 (Reserve Bank of Malawi, 1993). With the frequent devaluations, there was generally loss of confidence in the exchange system, leading to the floatation of the kwacha in February 1994.

The current account continued to worsen even after adopting a floating regime in 1994, hence authorities switched to a number of floating regimes necessitated by the need to correct the persistent balance of payment disequilibrium. At the beginning of 2001, the current account started to worsen rapidly to levels than ever before, and in 2005 it hit a high record of 26% of GDP. This outturn was largely explained by the unprecedented increase in imports against stagnating exports. In 2005, however, fiscal policy became restrained, sustained by the International Monetary Fund (IMF) monitored economic programmes. External debt stock burgeoned

---

[2]With the growing deficits the country exhausted the options to borrow commercially in the euro market and was in 1979 forced for the first time to borrow under the IMF standby arrangement to the tune of SDR26.34 million.

averaging over 100% of GDP just before qualification for Debt relief under the HIPC and MDRI (Government of Malawi, 2007). On reaching the HIPC Completion Point in August 2006, Malawi's external debt stock and hence debt service significantly declined, reaching K6.0 billion (US$44.1 million).

Following the bailing out by the IMF and Paris club creditors, interest burden significantly declined, reaching almost zero percent of GDP (0.03% of GDP). This coupled with improvement in terms of trade following a rise in world commodity prices led to the current account position to improve narrowing to 17% of GDP in 2007, though temporarily. In 2008, the economy was hugely affected by the fertiliser and oil shocks, worsening the current account position. To contain these shocks, fiscal policy became overly accommodative. However, the economy remained buoyant as growth averaged 7.5% between 2007 and 2009. Despite the onset of the global economic and financial crisis the economy remained resilient to the first round effects, due to the underdeveloped financial system and hence integration into the global financial system. Nevertheless, globalisation did not spare the economy from the second round effects through the trade channel, negatively impacting the current account (International Monetary Fund, 2011).

METHODOLOGY

The empirical strategy of the paper is to use two different approaches namely; the structural approach (International Monetary Fund, 2006) and the solvency approach (Nakamura and McPherson 2005). Although each of these approaches has its own weaknesses, they can complement each other and give policy makers a broader perspective on how to sustain Malawi's current accounts, enabling them to take informed policy actions. We have Where: CAB= current account deficit (excluding grants) as a

as the critical factors that policy makers would need to achieve sustainability and remain on that path. Secondly, the coefficients of the estimated model would give size of the adjustment. We have complemented this with the solvency approach because of the significance of external debt and interest payments affecting Malawi's balance of payments, as alluded to earlier. As such, the solvency approach would highlight the external debt problem in relation to sustainability of Malawi's current account.

The structural approach to current account sustainability

Following the International Monetary Fund (2006), this approach consists of three steps. The first step is to estimate an econometric model that relates current account to its medium term fundamentals. In other words, the significant coefficients will be interpreted as important values for the current account to be on a sustainable path. The second step is to calculate the current account norm by multiplying the coefficients obtained from the current account model with medium term fundamental values. In the last step, the actual current account is compared to the current account norm. When the actual current account deficit is larger than the norm that means the current account deficit is unsustainable; whilst if the deficit is smaller than the norm that means it is sustainable.

The theoretical basis for the structural approach is the savings-investment model. According to this approach, the current account balance is defined and derived from the national account identity. The current account deficits could arise from dissaving from both the private and public as well as from higher investments. The saving-investment model is specified in the following general function:

$$y_t = \alpha_0 + \alpha_i Z_{it} + \mu_t \tag{1}$$

Where the dependent variable y_t is the current account deficit expressed as a ratio to GDP, Z is the vector of the explanatory variables. Literature provides a vast range of variables that structurally influence the determination of the current account. Equation (2) represents the simple linear functional formulation of the model;

$$CAB = \alpha_0 + \alpha_1 FD + \alpha_2 NFA_{-1} + \alpha_3 OPEN + \alpha_4 TOT + \alpha_5 REER + \alpha_6 ODA + \alpha_7 DEP + \alpha_8 EXT + \alpha_9 G + \mu_t \tag{2}$$

percentage of GD, FD = fiscal balance including grants over GDP, NFA_1 = net foreign asset at the beginning of the period, OPEN = ratio of the sum of imports and exports to GDP, TOT =price of exports over the price of imports, REER =Real Effective Exchange Rate, ODA= Official Development Assistance, DEP=Dependancy ration, EXT=External Debt, G = real output growth, α_0 is a constant, $\alpha_1 - \alpha_9$ are coefficients.

Definition and justification of variables

Current account deficit (CAB): is the current account deficit (excluding grants) as a percentage of GDP. We chose this definition because we want to pin down the variables that influence chosen the structural approach for two reasons. Firstly, because the significant values obtained from the equation can be interpreted

the current account deficit because the inclusion of grants would give biased results as the level of current account is shown to be improved with grants. *Since our dependant variable is deficit a positive means increasing the deficit (worsening the current account balance) and a negative means reducing the deficit (improving the current account balance).*
Fiscal balance (FD): is the fiscal balance including grants expressed as a percentage of GDP. In Malawi, donor budget support accounts for about 60% of the total budget as such it is important to use this definition and the expected sign is positive.
Net foreign asset lagged once (NFA_1): is the measure of initial condition or the stock of net foreign asset at the beginning of the period and the expected sign is ambiguous. The initial NFA position used in the empirical model is measured before the period of reference for current account balance so as to avoid capturing a reverse link from the current account balance to NFA. The country has generally been running very low reserves often times below the minimum required by international standards as such it would be

important to validate its influence on the Malawi's current account.

Openness (OP): Is the degree of openness measured as the ratio of the sum of imports and exports to GDP and is expected to be negatively correlated with current account. This measure is important for Malawi as liberalization of the current account started in 1988 and was only completed in 1994 with the flotation of the Malawi kwacha exchange rate. Other studies have used openness to capital of which its measurement has always been difficult and controversial. Most studies use rough numerical indices of different policies and regulations, so called de jury measure. Other studies use de facto measures of integration, such as capital flows within a certain time period or foreign asset holdings which are usually determined jointly with the macroeconomic performance they are supposed to explain.

Terms of trade (TOT): Is the terms of trade defined as price of exports over the price of imports, and is theoretically ambiguous a priori. Data are authors' own calculation; this was done in order to have consistent data set as some TOT data were missing data in some years. The country export traditional commodities and import oil and other essential imports like fertilizers which are subject to external price shocks and would impact the current account.

Real effective exchange rate (REER): is the Real Effective Exchange Rate obtained from the IMF's IFS. An increase is an appreciation and a decrease is depreciation, and is theoretically expected to be positively related with the current account.

Dependency (DEP): Is the age dependency ratio with a positive expected sign. In some studies, this is defined as the ratio of people younger than 15 and older than 65 years of age over the total population. In developing countries, however, increases in relative size of the working age population could lead to stronger per capita growth provided the additional labour resources are productive. In our paper, we use population growth to capture the share of economically dependent young people. In this study, we use population growth, not taking into account the older population, as the life expectancy for Malawi is relatively low averaging 40 years of age. Data are obtained from the National statistical office.

External debt (EXT): Is external debt over GDP, and the sign is expected to be positive. Data are from World Bank indicators.

Official development assistance (ODA): Is official development assistance and expects a negative sign. Data are from World Bank indicators.

Growth (G): Is the real output growth and the expected relationship with the current account deficit is apriori unknown. Data are obtained from the National statistical office.

The solvency approach to debt and current account sustainability

This approach focuses on debt ratio analysis, following Husted (1992), Hudson and Stennett (2003) and others. This framework defines a sustainable current account as the one that does not generate increases in the debt to GDP ratio. This is drawn from the general understanding that external indebtedness evolves from the trade balance as well as interest payments.

Therefore the condition for sustainability would be given by;

$$\frac{(i_t - g_t)}{(1 + g_t)}(b_{t-1}) - (x - m)_t = 0$$

(3)

Equation (3) implies that should the trade be exactly balanced, the change in the debt to GDP ratio (b_t) would depend on the deviation between the interest rate on the economy's net external liabilities and the growth of GDP. That is if g>i, it is an indication that growth

is enough to counter increases in debt build-up. Whilst if g<i, then the debt to GDP ratio would increase, unless trade balance is in surplus to offset this, then the position is unsustainable. Positive values of equation would occur when the term $(x - m)$ is < 0 thus trade deficit; in that case, the current account deficit has the potential of increasing the debt stock, thus an early warning for future current account unsustainability. Negative values of the equation (3) would occur if the term $(x - m)$ is > 0 or a trade surplus, which would more than offset the build-up of debt (the first term).

Data

The study uses annual data covering a period of 1980-2010. Data are obtained from various publications of the Reserve Bank of Malawi, and the Statistical Bulletin of the National Statistical Office. TOT data are authors' own calculation. This was done so as to have consistent data set as some TOT data were missing data in some years.

RESULTS AND DISCUSSION

Econometric issues

Preliminary analysis of data is conducted and the summary statistics are contained in Appendix- Table A1. The next step is to find out the appropriate estimation technique. We carry out granger causality tests (Appendix; Table A2) to check for reverse causality between the regressors and the dependant variables. Results indicate that there are no statistically significant causalities, implying no serious potential endogeneity of the regressors in our model, as such we proceed to use OLS estimation techniques.

Unit root tests were performed using ADF test and the results are mixed (Table 1). From the graphical analysis we included the trend in the test equation. Results indicate that series CAB and NFA1 are integration of order one, whilst, series EXT, TOT, ODA FD, G, and DEP are found to be stationary. However, series REER and OPEN are found to be trend stationary.

Since unit root test results indicate that some variables are I(1) while others are I(0), we cannot use cointegration methodology and make inferences from the obtained regression estimates. As such a bounds test approach developed by Pesaran et al. (2001) is adopted for testing the level relationships.

A bounds test approach to the analysis of level of relationships

A bounds test, developed by Pesaran et al. (2001) for testing level relationships, is applicable to test the level relationship between a dependent and a set of regressors, irrespective of whether the underlying regressors are stationary, nonstationary or a mixture of both. There are two statistics (the F-statistics and Wald

Table 1. Unit root test of the Augmented Dickey Fuller (ADF) test.

Variable	Level		First difference		Longest lag	Order of integration
	Includes constant	Includes constant and linear trend	Includes constant	Includes constant and linear trend		
CAB	-0.958		-8.091*	-8.286*	4	I(1)
EXT	-2.881***	-2.76	-8.079*	-8.210*	7	I(0)
TOT	-3.001**				7	I(0)
FD	-4.131*	-6.151*			7	I(0)
ODA	-3.176**		-8.079*	-8.213*	7	I(0)
G	-6.911*	-7.489*			7	I(0)
REER	-1.317	-5.013*	-6.309*		7	I(0)
NFA1	-1.655	-1.886	-5.207*	-5.117*	7	I(1)
OPEN	-1.084	-4.766*	-6.964*		7	I(0)
DEP	-4.148*				7	I(0)

Used E-views 7.0 to derive the results. Lags were selected based on Shwartz Information Criterion.
*, **, *** indicate significance at 1%, 5% and 10%, respectively.

test) used to for the significance of the lagged levels of the variables under consideration in a conditional unrestricted equilibrium correction model. The F-statistics have nonstandard asymptotic distribution under the null hypothesis that there exists no level relationship, regardless of whether the variables are I(1) or I(0). These are then analyzed against two sets of critical value bounds that cover all possible classifications of regressors into purely I(0), purely I(1) or mutually cointegrated (a mixture of I(0) and I(1) variables). The critical bounds are developed by Peseran (2001). If the computed F-statistic falls outside the Upper Critical Bound (UCB), then the series are co-integrated; if it is below the Lower Critical Bound (LCB) then there is no co-integration; if the calculated F-statistics is between the UCB and LCB, then it is inconclusive as to whether there is cointegration or not.

The autoregressive distributed lag (ARDL) approach to the estimation of level relationship in an ECM framework is adopted for two reasons. Firstly, as alluded to above some variables are of I(1) whilst others are of I(0); hence the ARDL is applicable. Secondly, we have a fairly small sample and it is argued that the ARDL model or the bounds testing approach to cointegration is better suited to small samples (Romilly et al., 2001). The unrestricted error correction method used to examine the long and short run relationships is of the following form:

$$\Delta CAB = \alpha_0 + \alpha_1 CAB_{t-1} + \alpha_2 X_{t-1} + \sum_{p=1}^{p} \alpha_3 \Delta Z_{t-p} + \alpha_4 \Delta X_t + \mu_t$$

(4)

Where, Δ denotes the difference operator, X_{t-1} is vector of regressors in level form lagged once, ΔZ_{t-p} represents differenced regressors and CAB_{t-1} dependent variable lagged; with p maximum lag length, α_0 is the intercept

term, and α_2, α_3 and α_4 are slope coefficients.

Using the Akaike Information Criterion (AIC) to choose the optimal lag length leads to an error correction version of an ARDL (1,2,2,0,0,2,0) in variables like REER, NFA1[3], G,OP, TOT, ODA, EXT. Following Campbell and Perron (1991), we use the general- to-specific testing strategy to determine the appropriate length of the ARDL so as not to compromise in degrees of freedom as our sample period is short.

To test for serial correlation we apply the Breusch–Godfrey tests and with probability chi squared of 0.1426, we fail to reject the null of no serial correlation at standard levels of significance. However, since there is presence of serial correlation at 14%, we correct for the problem of serial correlation OLS estimation techniques with the coefficient covariance matrix of the HAC Newy-West are used. With the probability of F-statistics of 0.8954, we fail to reject the null of no heteroskedasticity at standard levels of significance. We evaluate the stability of the coefficients by using the recursive estimate and results show that there was a structural break in 1998 as such a dummy variable (DUM98) is included to account for this structural break. A dummy variable (LIB) is included in the model to account for current account liberalization which commenced in 1988, as explained in earlier sections. The regression passes the functional form misspecification test and overall the regression results fit reasonably well and pass the diagnostic tests; hence it provides a sound basis for analysis. The estimated results of the ECM form are shown in Table 2. The computed F-statistics for testing the hypothesis that there exists no level relationship between CAB and the regressors F(11, 28) is 8.5. The appropriate critical value bounds from Pesaran et al. (2001) are 1.83, 2.94, 2.06,

---

[3]We include NFA1 as was significant though weakly (14%).

3.24, 2.54, 3.86, respectively, at 90, 95 and 99% level of significance. This falls outside upper critical value bounds. Hence the null of no level relationship with dummy variables is rejected, irrespective of whether the variables are all I(0) or I(1) or a mixture of I(0) and I(1) variables. We therefore proceed to make inferences from the estimated results.

The long run equation

The ECM form as in Table 2 allows us to have a better

insight into the dynamics of the current account. However, from the ECM we can also obtain the implied long run level relationship between the current account and the other explanatory variables. The long run equation is found by;

$$CAB_t = \gamma X_t + \varepsilon_t ;$$
(5)

where γ is $-(\alpha_2/\alpha_1)$ from equation (4)

Substituting the results from the ECM above we have;

$$CAB = -0.349 + 0.003REER - 0.006G + 0.303ODA + 0.107EXT - 0.230DUM98 + 1.005NFA_{-1} + 0..604OP - 0.003TOT$$
(6)

$$(-2.000) \quad (1.789) \quad (-1.313) \quad (-5.650) \quad (5.168) \quad (-2.823) \quad (-1.956) \quad (3.906)$$

The population growth (DEP) was included in the model as an increase in population would imply more investments for education and health hence less government savings. This variable was found to be statistically insignificant and was dropped. Similarly, the fiscal deficit (FD) variable was found to be insignificant in all lags and was dropped. The results are, however, different from Chinn and Prasad (2003), Nakamura and McPherson (2005) and International Monetary Fund (2006), as they both found that government budget balance was statistically significant in their current account balance panel regressions. This is also contrary to the twin deficit hypothesis and to conventional wisdom as one would expect that the high fiscal deficits (FD) the country has been running should strongly impact the current account deficits. The results should, however, be taken with caution as it could be due to measurement of the variable. The estimated coefficient on the real exchange rate (REER) is positive and significant which implies that an overvaluation worsens the current account deficit. The results for external debt (EXT) indicate a positive and significant coefficient which implies that accumulation of debt either private or public worsens the current account balance through high interest payments. With traditional sources of capital flows, the official development assistance, declining, Malawi has heavily relied on external borrowing as other sources of capital flows, like foreign direct investment and portfolio flows have been insignificant. As such, this has put pressure on the current account through interest payments, which slowly increase after the HIPC relief.

With regard to openness (OPEN), the coefficient was statistically significant and had unexpected positive sign, implying that liberalization of the current account worsens the current account deficit. One explanation can be attributed to the growth of imports outpacing the growth of exports. For instance, towards the later years the country had opened up to other trading partners like China. Following that there has been an influx of imports from China against very little exports. The estimated coefficient for terms of trade (TOT) was found to be

negative and significant, implying that an improvement in terms of trade improves the current account deficit. The coefficient for the level of net foreign assets is theoretically ambiguous and was found to be positive and significant; implying increasing in net foreign asset increases the deficit. The estimated coefficient for growth (G) was found to be negative and significant, as expected, suggesting that an increase in output growth improves the current account deficit. This result is relevant to the Malawian economy which requires growth in its tradable sector to improve its trade.

The current account norm

The estimated results of the long run equation indicate that real exchange rate, external debt, openness, net foreign assets and growth in output are fundamental determinants of the current account. These therefore are the important variables required to influence the current account to be on a sustainable path. In the second step, the estimated coefficients of the above variables are multiplied by the medium term values of these variables. In this study, we take the HP filter of the variables to be the potential or medium term values[4]. We use the HP filter because it is has the following advantages: firstly, it is simple to apply; secondly, it requires few judgmental assumptions and little reliance on economic theory to produce results; and thirdly, it produces a variable that is stationary and the trend follows a stochastic process (Yap, 2003). The estimated current account norms are plotted against the actual current account as in Figure 2.

The current account norm is able to track the actual current account with a correlation of about 60%. Overall, the current account deficit was frequently excessive than the norm would predict, with an average deviation of about 5% of GDP for the whole period, with the widest deviation in 2005. The chart further reveals that after receiving the debt relief under the HIPC program in 2006,

---

[4] IMF uses four year averages

Table 2: Results of the Error Correction from the ARDL Model

Dependent Variable (D(CAB))	Coefficients	Standard Error
CAB(_1)	0.549***	0.164
D(CAB(_1))	-0.041	0.144
REER(_1)	-0.002*	0.0008
D(REER)	-0.0002	0.0008
G(_1)	0.003	0.002
D(G)	-0.0003	0.002
LIB	0.046*	0.022
NFA_1	-0.552*	0.196
D(NFA_1)	0.001	0.204
OP(_1)	-0.332**	0.170
D(OP)	-0.731***	0.088
TOT(_1)	0.002***	0.0005
D(TOT)	0.0005*	0.0002
ODA(_1)	-0.164	0.125
D(ODA)	0.166**	0.068
D(ODA(_1))	-0.349*	0.055
D(ODA(_2))	0.371**	0.108
EXT(_1)	-0.071**	0.013
D(EXT)	0.025	0.022
DUM98	0.154**	0.030
C	0.192	0.161

Table 3. Results of the error correction from the ARDL model.

Dependent variable (D(CAB))	Coefficient	Standard error
CAB(_1)	0.549***	0.164
D(CAB(_1))	-0.041	0.144
REER(_1)	-0.002*	0.0008
D(REER)	-0.0002	0.0008
G(_1)	0.003	0.002
D(G)	-0.0003	0.002
LIB	0.046*	0.022
NFA_1	-0.552*	0.196
D(NFA_1)	0.001	0.204
OP(_1)	-0.332**	0.17
D(OP)	-0.731***	0.088
TOT(_1)	0.002***	0.0005
D(TOT)	0.0005*	0.0002
ODA(_1)	-0.164	0.125
D(ODA)	0.166**	0.068
D(ODA(_1))	-0.349*	0.055
D(ODA(_2))	0.371**	0.108
EXT(_1)	-0.071**	0.013
D(EXT)	0.025	0.022
DUM98	0.154**	0.03
C	0.192	0.161
Adjusted R2	0.85	
F-statistic	8.51	
Prob (F-statistic)	0.004	
Dubin Watson	2.89	
Serial correlation	F(2,5)	0.143
Heteroscedasticity	F(20,7)	0.895
Reset(2) specification test	F(1,6)	0.761

Note: superscript *, ** and *** means significant at 10%, 5% and 1%, respectively.
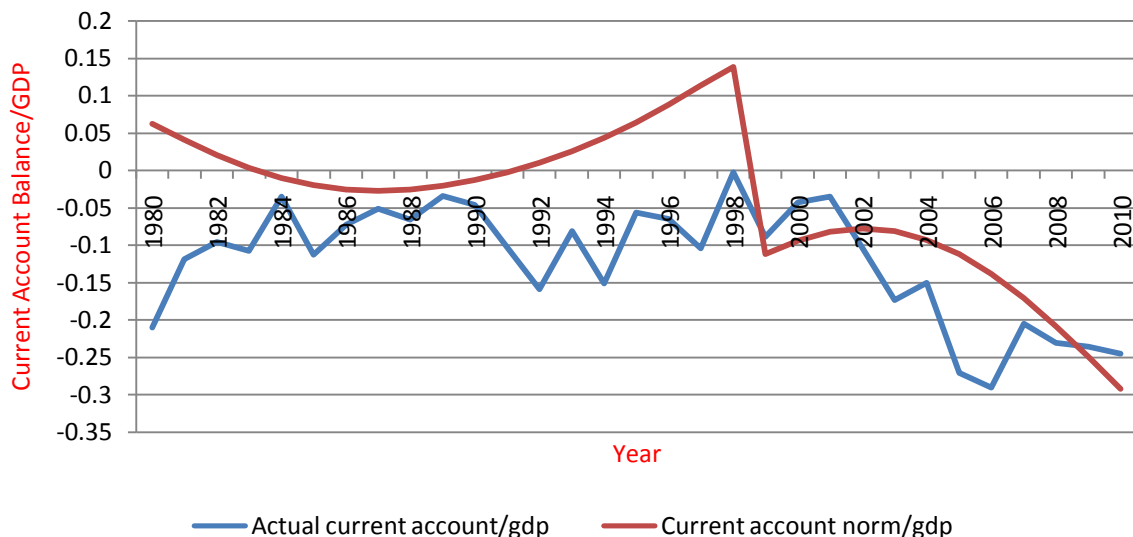
Figure 2. Actual current account balance vs. current account norm 1980-2010.
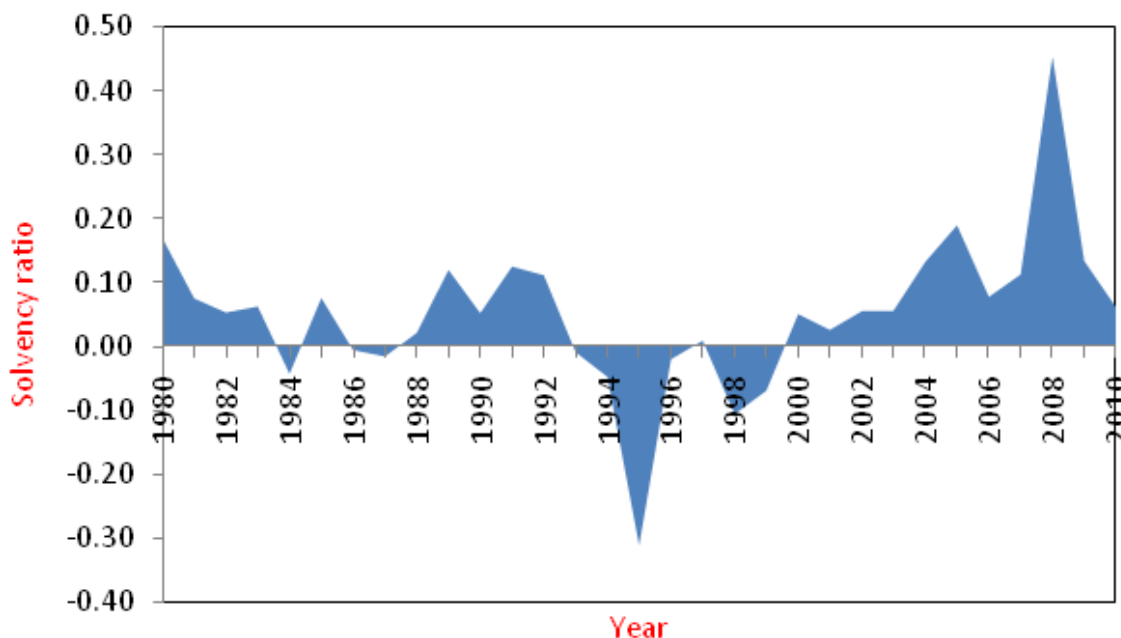Source: author's estimations and calculations.

Figure 3. The solvency approach current account sustainability.
Source: Authors own calculation.

the current account deficit though temporarily improved was still in excess of what the structural fundamentals would call for.

Debt and current account sustainability

Using equation (3), computations were done and results are shown in Figure 3. The chart shows that the current

account was sustainable only during a few years (1984, 1987, 1994 and 1995, 1998 and 1999). The situation started to worsen in 2000 and was worst in 2008, even though somewhat improved in later years. These findings are generally consistent with the earlier approach discussed as trade surpluses have not been sufficient to repay the existing debt.

It is interesting to note that in 2006 when the country received HIPC debt relief, results from this approach

revealed that the current account still remained unsustainable, though improved marginally. One reason for this finding could be due to the fact that this approach only focuses on interest rate and growth rate differentials and the solvency condition (the ability of a country to generate future trade surpluses to repay existing debt). The approach does not take into account the role of foreign investors and lenders.

Furthermore, this approach undermines the role of political economy that is whilst trade surpluses may be theoretically sufficient to repay the external debt; diverting resources from domestic economy to repay external debt may not be politically feasible (Millessi et al., 1996).

Conclusion

This paper analyses the sustainability of Malawi's current account using the structural approach and solvency approach to current account sustainability, on annual data from 1980 to 2010. Results from both approaches confirm that Malawi's current account deficits were excessive and unsustainable during the period under review. Results also reveal that for Malawi's current account to move towards a sustainable path, particular attention should be paid to the following factors; real exchange rate, terms of trade, economic growth, external debt, net foreign assets and openness to trade. Results further reveal that Malawi's current account deficits were excessive and unsustainable. Overall, the current account deficit was frequently excessive than the norm would predict, with an average deviation of 5.0% of GDP for the whole period. The accounting approach to current account sustainability showed that external debt for the country was unsustainable. Even after the HIPC relief the current account was still unsustainable; hence further confirming results from the other approach. In this regard, policies that will ensure that the real exchange rate is not overvalued, growth is enhanced particularly in the export sector and also ensure that external debt is sustainable will be key to ensuring sustainable current account.

REFERENCES

Brissimis S, Hondroyiannis G, Papazoglou C, Tsaveas N, Vasardani M (2010). Current Account Determinants and External Sustainability in Periods of Structural Change. European Central Bank Eurosystem, Working Paper Series, No.1243.
Binatli A, Sohrabji N (2008). Analyzing the Present Sustainability of Turkey's Current Account Position. J. Int. Trade Diplomacy. 2 (2): 171-209.
Boljanović S (2012). A Sustainability Analysis of Serbia's Current Account Deficit. Econ. Ann. 57(195): 139-171.
Campbell J, Perron P (1991).   Pitfall and Opportunities: What Macroeconomists should know about Unit Roots. NBER Technical Working Paper, No 100.

Chinn M, Prasad E (2003). Medium-term Determinants of Current Accounts in Industrial and Developing Countries: An Empirical Exploration. J. Int. Econ. 59:47-76.
Government of Malawi (1982). Annual Economic Report, Ministry of Economic Planning and Development.
Government of Malawi (1989). Annual Economic Report, Ministry of Economic Planning and Development
Government of Malawi (2007). Report on Public Debt Sustainability and New Financing Analysis in Malawi, April 2007.
Hudson S, Stennett R (2003). Current Account Sustainability in Jamaica. Bank of Jamaica Working Paper, WP 02/11.
Husted S (1992). The Emerging U.S. Current Account Deficit in the 1980s: A Cointegration Analysis. Rev. Econ. Stat. 74(1): 159-166.
International Monetary Fund (2006). Methodology for CGER Exchange Rate Assessments. Research Department.
International Monetary Fund (2011). The World Economic Outlook for September 2011. Available at http://www.imf.org/external/pubs/ft/weo/2011/02/data/index.aspx. Accessed 22 December 2011.
Kaminsky G, Lizondo S, Reinhart C (1998). Leading Indicators of Currency Crises. IMF Staff Papers, 45 :1-48.
McGettigan D (2000). Curent Account and External Sustainability in the Baltics, Russia and Other Countries in the Former Soviet Union. IMF Occasional Paper, no. 189
Mataya C, Chulu O, Chilima E (1998). Social Economic Effects of Structural Adjustment Policies on Malawi's Rural and Urban Household. National Economic Council (Malawi).
Milesi-Ferretti G, Razin A (1996). Current Account Sustainability. Princeton Studies in International Finance, No. 81.
Nakamura T, McPherson F (2005). Are HIPCs current account sustainable? The case of Sub-Saharan Africa. Accessed at www.eb.kobegakuin.ac.jp/~ntohru/account.pdf.on   16   December 2011.
Obstfeld M, Rogoff K (1996). Foundations of International Macroeconomics. Cambridge MA:MIT Press.
Opoku-Afari M (2007). Capital Flows and Current Account Sustainability: The Ghanaian Experience. Credit Research Paper, 07(07).
Pesaran M, Shin Y, Smith R (2001). Bounds Testing Approaches to the Analysis of Level Relationships. J. Appl. Econom.16:289-326.
Reserve Bank of Malawi, (1987). Financial Economic Reviews. 19(1): 71-82
Reserve Bank of Malawi, (1993). Financial Economic Reviews. 25(1): 93-97
Reserve Bank of Malawi, (2007) Financial Economic Reviews. 39(2): 19-25
Romilly P, Song H, Liu X (2001). Car Ownership and Use in Britain: A Comparison of the Empirical Results of Alternative Cointegration Estimation Methods and Forecasts. Appl. Econ. 33: 1803 – 1818.
Silumbu E (1995).The Role of Exchange Rate and Monetary Policy in the Monetary Approach to the Balance of Payments: Evidence from Malawi. African Economic Research Consortium, Nairobi, Kenya (AERC) Research Paper No.37.
Wu J, Fountas S, Chen S (2001). Are current Account Deficits Sustainable? Evidence From Panel Cointegration. Economic Letter, 72:219-224.
Yap J (2003). The Output Gap and its Role in Inflation-Targeting in the Philippines. Discussion Paper Series, 2003-10.

Appendix Table A1: Summary Statistics

	CAB	EXT	FD	g	NFA1	ODA	OP	DEP	REER	TOT
Mean	-0.12	0.93	-0.05	3.46	-0.01	0.20	0.50	3.17	117.34	107.35
Median	-0.10	0.86	-0.05	4.04	0.00	0.19	0.49	2.80	123.08	115.45
Maximum	0.00	3.09	0.02	15.01	0.10	0.43	0.71	9.00	166.74	186.80
Minimum	-0.29	0.17	-0.12	-11.61	-0.13	0.09	0.35	0.73	73.29	27.69
Std. Dev.	0.08	0.65	0.04	5.35	0.06	0.08	0.10	1.75	31.96	33.09
Skewness	-0.64	1.27	0.24	-0.81	-0.24	0.96	0.56	1.52	-0.04	-0.22
Kurtosis	2.33	5.21	2.63	4.29	2.12	3.92	2.66	5.50	1.50	3.08
Jarque-Bera	2.67	14.61	0.49	5.57	1.29	5.87	1.74	20.01	2.92	0.27
Probability	0.26	0.00	0.78	0.06	0.52	0.05	0.42	0.00	0.23	0.88
Sum	-3.74	28.79	-1.58	107.12	-0.34	6.34	15.63	98.16	3637.41	3327.89
Sum Sq. Dev.	0.18	12.69	0.04	859.20	0.12	0.22	0.28	91.74	30647.44	32852.85
Observations	31	31	31	31	31	31	31	31	31	31

Appendix Table A2: Granger causality test 1980-2010 with 2 lags

Null Hypothesis	Probability
EXT does not granger cause CAB	0.587
CAB does not granger cause EXT	0.220
FD does not granger cause CAB	0.804
CAB does not granger cause FD	0.504
G does not granger cause CAB	0.224
CAB does not granger cause g	0.282
ODA does not granger cause CAB	0.753
CAB does not granger cause ODA	0.127
OP does not granger cause CAB	0.149
CAB does not granger cause OP	0.672
REER does not granger cause CAB	0.101
CAB does not granger cause REER	0.353
DEP does not granger cause CAB	1.672
CAB does not granger cause DEP	0.864
TRADE BALANCE does not Granger Cause REER	0.593
REER does not Granger Cause TRADE BALANCE	0.128