Pulling Down Trade Barriers in Sub-Saharan Africa

CONTENTS

EXCHANGE RATE SENSITIVITY OF THE TRADE BALANCE:
EVIDENCE FROM MALAWI

By Ronald Mangani, *Department of Economics, University of Malawi*

1. INTRODUCTION

This study examined the effects of the real effective exchange rate on the aggregate trade balance in Malawi, to inform the formulation of exchange rate policy. Exchange rate policy continues to attract significant interest among economists, because the exchange rate has key theoretical bearings on many macro-economic variables including the balance of payments, domestic prices and international reserves. Within the Malawi context, the combination of a low export base and high dependence on imports pose a challenge to value of the Malawi kwacha both in the domestic and foreign markets. While age-old economic theory posits that an overvalued domestic currency relative to foreign exchange worsens the country's trade balance and foreign reserve position (Marshall, 1923; Lerner, 1944), it is also the case that domestic currency depreciation can be inflationary, especially in highly import-oriented economies. The latter effect can be described through yet another age-old theory, the Purchasing Power Parity (PPP) hypothesis seminally popularised by Cassel (1918). As such authorities typically face a crucial dilemma in the exchange rate policy objective function, especially when their capacity to defend the domestic currency is compromised by foreign reserve limitations.

Intuition, observation and analytical work now strongly suggest that the exchange rate is a very key determinant of domestic prices in Malawi. Immediately upon currency flotation in 1994, the 62 per cent resultant devaluation of the Malawi kwacha accounted for the most inflationary period in Malawi: annual inflation peaked at 60.6 per cent in 1995. Mangani (2011) documents evidence that the exchange rate is the single most important variable influencing prices in Malawi, and that its effects are transmitted directly rather than through the exchange rate channel of the monetary policy transmission mechanism. More evidence is provided by Ngalawa (2009). On the other hand, although some commentators posit that the welfare implications of currency devaluation outweigh the benefits in Malawi, credible quantitative evidence on the effects of the exchange rate on the country's balance of payments in general -- and the trade balance in particular -- remains wanting. This paper contributes to this debate by establishing that the exchange rate has no significant effects on Malawi's trade balance.

The paper proceeds as follows. Section 2 discusses Malawi exchange rate policy developments to locate the ensuing analysis in the national context. The methodologies adopted in the study are presented in Section 3, while Section 4 presents the findings. A conclusion in made in Section 5.

2.   **Exchange Rate Policy in Malawi[1]**

Malawi is a heavily import-oriented economy and an exchange rate policy is as crucial as a conventional monetary policy. Thus, in addition to the control of demand-pull inflation resulting from swelling money supply, the Central Bank of Malawi has to deal with cost-push inflation, largely arising from domestic currency devaluation and exogenous shocks. Malawi's foreign reserve position is highly precarious due to over-dependence on two key but highly vulnerable sources: tobacco exports (which usually account for over 60 per cent of foreign exchange earnings) and foreign development assistance. Failures in rain-fed agriculture and donor inflows induce sometimes unsustainable interventionist activities from the authorities, or directly impact on domestic prices when authorities succumb to the resultant foreign exchange shortages by invoking currency devaluation to address external imbalances. Moreover, the fact that the country is land-locked coupled with heavy reliance on imported oil for energy have great potential to induce imported inflation and undermine monetary policy. The exchange rate clearly emerges as the nominal anchor of stabilisation in Malawi.

Various exchange rate regimes have been pursued in Malawi during its history. The Malawi kwacha (MK) stood at one-to-one against the British pound sterling (GBP) between 1964 and 1967, and at MK2.00 = GBP1.00 between 1967 and 1973. Following the collapse of the Bretton Woods' fixed exchange rate system, the kwacha was pegged to a trade-weighted average of the GBP and the United States dollar (US$) from November 1973 to June 1975, and to the Special Drawing Rights (SDR) at almost one-to-one between July 1975 and January 1984. In response to an expansion in Malawi's volume of trade and her trading partners, the kwacha was eventually pegged to a trade-weighted basket of seven currencies (US$, GBP, German deutschemark, South African rand, French franc, Japanese yen, and Dutch guilder). This period was characterised by frequent devaluations implemented in the context of the structural adjustment programmes supported by the International Monetary Fund (IMF), in an attempt to improve the country's export competitiveness and balance of payments position. Five devaluations in the magnitudes of 7 per cent to 22 per cent against the US$ were effected between February 1986, and August 1992. In February 1994, the kwacha was finally purportedly floated, and an interbank foreign exchange market was introduced to determine the exchange rate. As a consequence, the current account was effectively liberalised, although the capital account remains unliberalised and some exchange controls (e.g., limitations on foreign exchange allowances for travel, remittances, repatriations and importation of consumer goods) remain in place. The immediate effect of the floatation was a 62.0 per cent depreciation of the domestic currency between February and December 1994, from MK5.92 to MK15.58 per US$.

Given the limited number of players in the market which constrained the foreign exchange bidding process, the government adopted a managed floating system in 1995. Under this system, the authorities intervened to artificially influence the exchange rate through sales and purchases of foreign currency, hence managing it within a narrow band. However, the band was removed later in 1998 in favour of a free float, only to be reinstated with a very narrow flexibility range in mid-2006.

---

1   **Most of this account is derived from Mangani (2011).**

Although maintaining stability of the exchange rate is a prime objective of the Government, it is clear that the attainment of this objective is quite a challenge. Due to a multiplicity of factors (e.g., excessive dependence on imported raw materials, intermediate inputs and final consumer goods; currency over-valuation; and a narrow export base), Malawi's trade balance and balance of payments positions are almost perpetually negative, and have been worsening over time (Tables 1 and 2). Thus, the authorities' concerted yearning to prevent adverse fluctuations in the exchange rate exerts a lot of pressure on foreign reserves and the external value of the kwacha, because it reflects a subsidisation of imports.

Table 1: External Trade Position (US$ million)

	2002	2003	2004	2005	2006	2007*	2008*	2009	2010*
Total imports	699.6	787.0	932.2	1183.7	1268.5	1436.4	1654.5	1574.674	2325.807
Total exports	409.6	530.5	483.1	503.7	709.1	920.4	1036.6	1118.117	1062.909
Trade balance	-290.0	-256.5	-449.1	-680.1	-559.4	-516.0	-617.9	-456.556	-1262.9

Source: *Government of Malawi, Annual Economic Report, various. *Estimates*

Table 2: Malawi's Balance of Payments Summary (K million)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Trade balance	-3226	-13895	-24400	-33889	-59369	-67499	-76298	-67316	-74514	-64959
Current account balance	-12831	-28678	-41581	-55232	-83136	-95348	-100592	-92614	-108177	-106105
Capital account balance	20241	15151	14012	29442	35677	28949	64020	68111	101808	141636
Balance before debt relief	559	-5904	-6224	-6774	-12483	-17100	-4535	9061	-7278	-14046
Debt relief	820	2244	4634	5125	7079	14925	155	-	-	-

Source: Reserve Bank of Malawi, Financial and Economic Review Vol. 41 No. 1, 2009.

Figure 1 shows trends in the nominal exchange rates between the Malawi kwacha and two key currencies, the United States dollar (MK/US$) and the South African rand (MK/ZAR). The figure reveals that pressure on the Malawi kwacha has been steady since its floatation in February 1994, leading to a persistent downward trend in the value of the domestic currency. This trend continued until around mid-2006 when authorities unequivocally opted to allow very limited variability in relation to the US$. Thus, the Malawi kwacha depreciated from

about MK118/US$ in 2005 to about MK139/US$ by May 2006, although it remained pegged around this level (plus/minus MK2.00/US$) until around November 2009. This was reflective of reversion to the managed floating regime already discussed, and was costly on the limited foreign reserves available to the country. The fact that the rate on the parallel market was usually significantly above the official rate during this period was a telling sign of domestic currency overvaluation[2]. Thus, at US$209.5 million in July 2009, total gross official reserves[3] were only equivalent to 1.6 months of imports (Reserve Bank of Malawi, 2009). This represented a marginal improvement to the level of 1.1 months of imports experienced in January 2009, and 1.3 months in September 2008, all of which were significantly lower than the 2.5 months recorded in December 2005. Gross official reserves were estimated at US$302 million or 2.33 months of imports in November 2010. But these increased to the equivalent of 3.11 months in January 2011 on account of increased donor inflows following a positive review of the Extended Credit Facility by the IMF in December 2010 (Malawi Savings Bank, 2011).
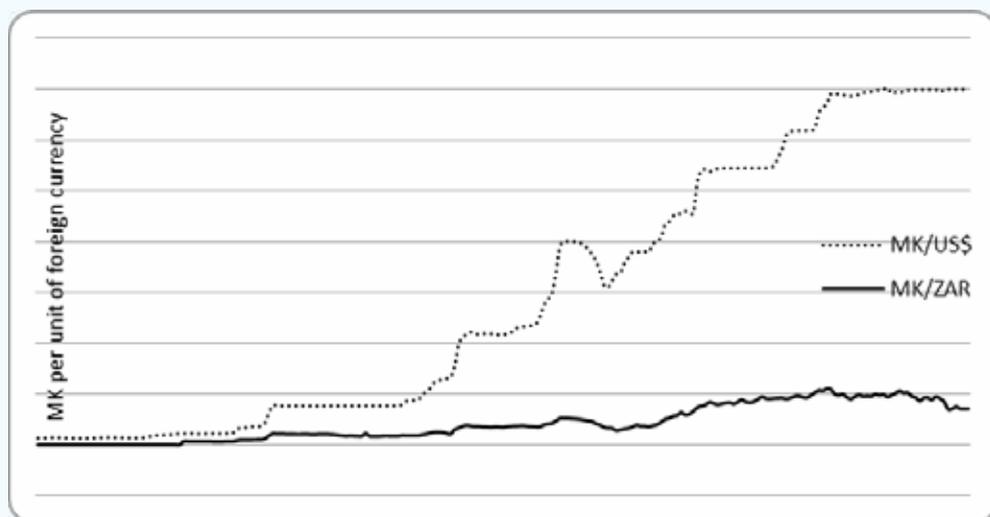
Source: *Reserve Bank of Malawi*

Figure 1 (above) Trends in Malawi Kwacha Exchange Rates

As at 13 May 2011, gross foreign exchange reserves stood at $350 million or the equivalent of 2.71 months of imports. This compared favourably with the situation on the same date in 2010, when the reserves stood at $327 million or 2.54 months of imports[4]. However, compared to 2010 when foreign exchange earnings from tobacco stood at $150.6 million by end of May, the 2011 earnings had declined by 78.8 per cent to only $31.9 million as at May 2011. Low

2   **The CABS Group, March 2009 CABS Review: Aide Memoir.**
3   **Estimate for the entire Banking System, which includes Gross Official Reserves, Foreign Currency Denominated Accounts (FCDAs) and authorized dealer bank's (ADB's) own foreign exchange positions.**
4   **Malawi Savings Bank Financial and Economic Report, various.**

tobacco prices, high fuel import costs and high costs of imported fertilizers pose challenges on the foreign reserve position. Available official data indicates that only about one half of the foreign exchange requirements of importers are backed by export proceeds (Government of Malawi, 2011). Since 2009, foreign exchange shortages are a major contributor to stifling industrial growth through fuel shortages and inability to import inputs, and the IMF[5] projects that Malawi's economic growth will continue to slow own as a result of this, from 8.9 per cent in 2009 and 6.7 per cent in 2010 to 6.1 per cent and 5.9 per cent in 2011 and 2012, respectively.

Responding to this persistent pressure on foreign exchange reserves, the Malawi kwacha weakened and was selling at K147.4 against the United States dollar as at the close of December 2009. By end of January 2010, the kwacha was trading at around K151.5 per US dollar, and hovered around that level throughout 2010 and the first half of 2011. Given the country's narrow and vulnerable export base, it is difficult to imagine that, in the short to medium term, a stable market-determined exchange rate regime can be operated without external balance of payments support and other forms of assistance from donors, and the limited flexibility in the exchange rate tends to create persistent external imbalances. Although there is a strong narrative regarding the adverse effects of the country's foreign exchange policies on the trade balance, these effects have not yet been quantified.

3.   Theoretical Framework and the Literature

The conventional wisdom that domestic currency devaluation improves the trade balance is rooted in a static and partial equilibrium approach to the balance of payments, called the elasticity approach. This approach is evolutionally formalised in the so-called BRM model due to Bickerdike (1920), Robinson (1947) and Metzeler (1948), which provides a sufficient condition (the BRM condition) for trade balance improvement. In particular, domestic currency devaluation makes domestic goods attractive in the foreign market (hence boosting exports) and foreign goods expensive in the domestic market (hence restricting imports), both of which effects lead to an improvement in the domestic country's trade balance. A particularly stylised form of the BRM condition, popularly called the Marshall-Lerner condition (Marshall, 1923; Lerner, 1944; hereafter the ML condition), states that for a positive effect of devaluation on the trade balance to occur, the sum of the exchange rate elasticities of exports and imports must exceed unity in absolute value terms. When the ML condition holds, the exchange market is implicitly stable since there will be excess foreign exchange when the exchange rate is above the equilibrium, and vice versa. As such, the ML condition is a long-run (equilibrium) condition empirically investigated through the exchange rate sensitivity of the imports and exports in level variables.

It is now increasingly recognised that the effects of devaluation on the trade balance occur with a time lag. As first observed by Magee (1973) as well as Junz and Rhomberg (1973), imports and exports adjust to changes with time lags which may take such forms as decision lag, recognition lag, production lag, replacement lag and delivery lag. Importantly, it is argued by some researchers that the trade balance actually deteriorates in the short-run in response to

---

5   **IMF, World Economic Outlook Report 2011.**

devaluation, but improves over time towards the ML condition. Hsing (1999) argues that the degree of foreign and domestic producer's price pass-through to consumers and the scale of supply and demand elasticities of exports and imports, determine the value of the exchange rate effect, and these tend to improve with time. This suggests that there is a short-run discrepancy which is corrected through an adjustment process in each period as the economy progresses to equilibrium (Bahmani-Oskooee, 2004). The time path of the effects of devaluation on the trade balance, therefore, traces the so-called J-curve. Empirically, most work on the J-curve effect has benefitted from the application of co-integration and error correction techniques, mostly building on the work of Bahmani-Oskooee, 1985.

Principally, models explaining both the ML condition and the J-curve effects typically express the trade balance (or, indeed exports and imports individually) as a function of domestic income, foreign income and the exchange rate, where the income variables are control variables while interest is on calibrating the exchange rate effects. Mixed empirical evidence exists on the exchange rate sensitivity of the trade balance, and an extensive survey of this literature will not be attempted here. A sample of the mixed evidence on the ML condition is in Summary (1989), Nadenichek (2000), Narayana and Narayana (2005), Bahmani-Oskooee and Goswami (2004), and Arize (2001). Equally mixed evidence on J-curve effects has also been documented for many countries, including Japan (Gupta-Kapoor and Ramakrishnan, 1999), Croatia (Tihomir, 2004), the USA (Bahmani-Oskooee and Ratha, 2008; Koch and Rosensweig, 1990;), Taiwan (Hsing, 2003), some ASEAN countries (Onafowora, 2003), as well as a selection of 13 developing countries from Asia, Latin America and Europe (Bahmani-Oskooee, 1991). Kamoto (2006) documents evidence of J-curve effects for South Africa.

In this spirit, Kamoto (2006) was unable to find a statistically significant J-curve effect for Malawi in a vector error correction modeling framework, although he was able to detect evidence of the long-run effects. Very little else has been documented on this subject using data from Malawi where debate on the macro-economic effects of exchange rate policy is rife. The present study applies the recently proposed error correction modeling framework to add to the very limited evidence from Malawi.

4.   Methodology

4.1   The Models

Building on Bahmani-Oskooee and Goswami (2004) and following Bahmani-Oskooee and Ratha (2008), the following log-linear export and import value models can be specified:

$$\ln X_t = \alpha_0 + \alpha_1 \ln Y_t^* + \alpha_2 \ln E_t + \mu_{1t}$$
(1)

$$\ln M_t = \beta_0 + \beta_1 \ln Y_t + \beta_2 \ln E_t + \mu_{2t}$$
(2)

where t denotes time, while X_t and M_t are the values of Malawi's exports and imports. In addition to the real effective exchange rate (E_t), exports also depend on the income level of Malawi's trading partners (Y_t^*), while imports depend on the level of Malawi's income (Y_t). It is expected that both α_1 and β_1 should be positive, indicating that exports increase with Y_t^* while imports increase with Y_t, *ceteris paribus*. Since an increase in the real effective exchange rate as reported in the International Financial Statistics (IFS) of the IMF represents an appreciation of the domestic currency relative to foreign currency, it is expected that $\alpha_2 < 0$ and that $\beta_2 > 0$. This is premised on the theoretical proposition that a higher external value of the kwacha makes foreign goods price-attractive to Malawians, and makes Malawian products unattractive to foreigners.

Advances in time series econometrics suggest that in the estimation of long-run relationships such as (1) and (2), the short-run dynamics must be incorporated to account for the adjustment path towards the long-run. Therefore, the study estimated the following error correction models which do not require explicit unit roots testing, in the spirit of Pesaran et al. (2001):

$$\Delta \ln X_t = a_i Q_{it} + \sum_{i=1}^{m} \rho_i \Delta \ln X_{t-i} + \sum_{i=1}^{m} \delta_i \ln Y_{t-i}^* + \sum_{i=1}^{m} \pi_i \ln E_{t-i} + \phi_1 \ln X_{t-1} + \phi_2 \ln Y_{t-1}^* + \phi_3 \ln E_{t-1} + \varepsilon_{1t}$$
(3)

$$\Delta \ln M_t = b_i Q_{it} + \sum_{k=1}^{n} \gamma_k \Delta \ln M_{t-k} + \sum_{k=1}^{n} \lambda_k \ln Y_{t-k} + \sum_{k=1}^{n} \eta_k \ln E_{t-k} + \varphi_1 \ln M_{t-1} + \varphi_2 \ln Y_{t-1} + \varphi_3 \ln E_{t-1} + \varepsilon_{2t}$$
(4)

where Q_{it} has been added to capture the inclusion of intercept terms, trend terms, dummy variables, and/or such other exogenous terms that may be suggested by the data generating processes. All other variables are as defined in (1) and (2). In these specifications of error correction models, co-integration is confirmed in the export value function if the ϕ_i coefficients are jointly significant. Similarly, the import value function is co-integrated if the φ_k coefficients are jointly significant. Thus, the co-integration tests were based on the null hypotheses of $\phi_1 = \phi_2 = \phi_3 = 0$ and $\varphi_1 = \varphi_2 = \varphi_3 = 0$ in the environment of standard Wald tests for linear restrictions. Pesaran et al. (2001) provide the upper and lower bound critical values for resolving these hypotheses, based on the standard F-statistics. Co-integration may not be rejected if the F-statistic is greater than the upper bound critical value, but may be rejected if the statistic is

smaller than the lower bound critical value. A major attractiveness of this procedure is that it can be applied regardless of whether the variables in the system are I(0) or (1) processes, or even a mixture of the two. As such, there is no need to conduct unit root tests on the variables. As a drawback, the test becomes inconclusive if the computed test statistic lies between these critical value bounds.

The foregoing procedure provides joint estimates of the short-run and long-run effects of the regressors on exports and imports. For instance, the short-run effect of the exchange rate on export values is jointly measured by π_i coefficients, while its long-run effect is measured by ϕ_3 normalised by ϕ_1 (hence by $-\phi_3/\phi_1$). Similarly, the η_k coefficients jointly measure the short-run exchange rate effect on import values, while $-\varphi_3/\varphi_1$ measures the long-run effect. As such, the tasting framework herein adopted permits a joint investigation of the long-run ML condition, as well as the short-run J-curve dynamics.

To determine the appropriate orders of lagged terms (i.e., the values of m and n), initial guidance was based on the minimisation of standard model selection criteria (i.e., the Akaike information criterion (AIC), the Schwarz Bayesian criterion (SBC) and the Hannan-Quinn criterion (HQC)). However, due attention was put on ensuring that the resulting models could account for serial correlation of at least the third order, and additional lags were accordingly included if thus necessary.

4.2   Variables and Data

The values of Malawi's exports and imports (in f.o.b and c.i.f terms, respectively) as well as Malawi's nominal GDP and real effective exchange rate were used in the study. Local currency values were converted to US dollar equivalents. Appendix 1 shows Malawi's 19 most important trading partners which accounted for about 71 per cent of Malawi's total trade in 2010. Of these, adequate data was not available for Mozambique, Swaziland and Zimbabwe, such that the income level of Malawi's trading partners ($Y_t^* Y_t^*$), expressed in US\$ terms, was computed as the sum of the nominal GDPs of the remaining 16 trading partners.

The study used quarterly data for the period between 1980Q1 and 2010Q2. Most of the data used was obtained from the IMF's International Financial Statistics (IFS) online database, but data gaps were filled through recourse to the various issues of the Financial and Economic Review of the Reserve Bank of Malawi, various online data sources, and interpolation. Importantly, since GDP data did not exist at the quarterly frequency for many countries including Malawi, or only existed for part of the sampling period for other countries, they were interpolated with the use of individual countries' export values as follows:

$$Y_{tTi} = \frac{X_{tTi}}{X_{Ti}} Y_{Ti}$$
(5)

where Y_{tTi} and X_{tTi} are the GDP and export values in quarter t of year T for country i, while Y_{Ti} and X_{Ti} are the GDP and export values for country i in year T. Although this interpolation process is not error-free (and none is!), the data thus generated alongside cases where actual quarterly GDP series were available had much smaller discrepancies compared to using the alternative Index of Industrial Production (IIP) in place of export values. In addition, this process was preferred since the sum of quarterly export values is a meaningful statistic as

opposed to the sum of quarterly IIP observations.

To summarise, the foregoing implies that the data was compiled on five variables, namely the value of Malawi's exports (X), the value of Malawi's imports (M), the GDP in Malawi (Y), the total GDP of Malawi's trading partners (Y^*) as well as Malawi's real effective exchange rate (E). Time plots of the natural logarithms of the five variables are presented in Appendix 2. With the exception of the real effective exchange rate, all the variables showed an upward trend which could potentially be deterministic. A downward deterministic trend in the exchange rate (consistent with a persistent depreciation of the Malawi kwacha in real terms) could also be suspected. In addition, the effect of currency floatation was noticed through the spike which reaches its floor during the last quarter of 1994, but this effect clearly died off within 1994. Based on these observations, and since currency floatation occurred in the 1994Q1, the study attempted to include the trend term as well as a dummy variable which assumed a value of unity for all 1994 observations and zero otherwise. However, the coefficients of these two exogenous terms were insignificant at 5 per cent, and only the intercept term was included in the final models to avoid the undue loss of degrees of freedom. In the ensuing analysis, the intercepts for the two models are denoted *a* and *b*, respectively.

5. Results and Discussion

5.1 Model Specifications and Diagnostics

The results of the lag order selection process for differenced terms as well as the Breusch-Godfrey LM tests are presented in Table 3 for both the export value model (Panel A) and the import value model (Panel B). While both the SBC and HQC suggested a lag of 3 for the export value model, the resulting regression was unable to account for serial correlation. On the other hand, the 4-lag model suggested by the AIC was able to account for at least third order serial correlation, and was selected. Similarly, the 3-lag import value model suggested by the AIC was preferred on account of its ability to achieve uncorrelated error terms. Table 4 shows that both the Ramsey's RESET test and Engel's ARCH test yielded insignificant statistics at the 5 per cent significance level. Therefore, the chosen export and import value models were generally adequate, as they did not display any gulling signs of serial correlation, misspecification or conditional heteroscedasticity.

Table 3: Model Selection Statistics

Panel A: Export Value Model

Lag	Selection Criteria Statistics			B-G LM Test	
	AIC	SBC	HQC	χ^2_1 (p)	χ^2_3 (p)
1	0.951	1.113	1.017		
2	0.693	0.927	0.788		
3	0.510	0.816*	0.634*	8.067 (0.005)	8.080 (0.044)
4	0.500*	0.878	0.654	0.009 (0.924)	5.06 (0.138)
5	0.539	0.991	0.723		

Panel B: Import Value Model

Lag	Selection Criteria Statistics			B-G LM Test	
	AIC	SBC	HQC	χ^2_1 (p)	χ^2_3 (p)
1	-0.234	-0.071*	-0.168*	1.088 (0.297)	10.842 (0.013)
2	-0.241	-0.007	-0.146		
3	-0.255*	-0.050	-0.131	0.023 (0.879)	0.525 (0.913)
4	-0.211	0.167	-0.057		
5	-0.163	0.288	0.020		

Note: χ^2_1 and χ^2_3 are the B-G LM test statistics under the null hypotheses of no 1st order and 3rd order serial correlation, respectively, and *(p)* denotes the corresponding probabilities of accepting such null hypotheses. * identifies the suggested model under each criterion.

Table 4: Diagnostic Tests for Selected Models

Model	Ramsey's RESET Test		Engel's ARCH Test	
	F_2 *(p)*	F_3 *(p)*	χ_1^2 (p)	χ_3^2 (p)
Export Value	3.445 (0.066)	1.755 (0.178)	0.036 (0.849)	0.863 (0.834)
Import Value	1.453 (0.231)		0.840 (0.359)	3.839 (0.279)

Note: F_2 and F_3 are the test statistics for investigating the appropriateness of quadratic and cubic models, respectively. Similarly χ_1^2 and χ_3^2 are the test statistics for ARCH(1) and ARCH(3) effects, respectively. (p) denotes the corresponding probability values under the respective null hypotheses of correct specification and no conditional heteroscedasticity.

Full estimation results are presented in Table 5, in which Panel A shows the results of estimating the export value model, while Panel B shows similar results for the import value model. It is worth noting that the export value model was a better fit of the two, since it was able to account for over 65 per cent of variability in the export value. The import value model, on the other hand, could only explain 23 per cent of the variability in import value. Nonetheless, the joint significance of parameters was strongly confirmed in both models, judging by the highly significant *F*-statistics.

Table 5: Estimation Results **Panel A: Export Value Model**

Variable	Coefficient	t-Statistic	Prob.
A	2.282650	1.077404	0.2839
$\Box LnX_{t-1}$	-0.168978	-1.119816	0.2654
$\Box LnX_{t-2}$	-0.375884	-2.791577*	0.0063
$\Box LnX_{t-3}$	-0.281176	-2.443431*	0.0163
$\Box LnX_{t-4}$	0.269822	2.630910*	0.0098
$\Box LnY*_{t-1}$	-1.858874	-1.443118	0.1521
$\Box LnY*_{t-2}$	-1.878393	-1.469824	0.1447
$\Box LnY*_{t-3}$	-0.311139	-0.241486	0.8097
$\Box LnY*_{t-4}$	0.371547	0.291426	0.7713
$\Box lnE_{t-1}$	0.355210	0.935933	0.3515
$\Box lnE_{t-2}$	-0.041032	-0.105304	0.9163
$\Box lnE_{t-3}$	0.023541	0.061102	0.9514
$\Box lnE_{t-4}$	0.111331	0.289915	0.7725
LnX_{t-1}	-0.391793	-2.937723*	0.0041
$LnY*_{t-1}$	0.123481	0.890334	0.3754

LnE_{t-1}	-0.316926	-1.494314	0.1382

Adjusted R-squared	0.654078
F-statistic	15.62237
Prob (F-statistic)	0.000000

Panel B: Import Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
B	2.681206	0.837514	3.201387*	0.0018
$\Box LnM_{t-1}$	-0.302600	0.129783	-2.331576*	0.0216
$\Box LnM_{t-2}$	-0.208314	0.123578	-1.685688	0.0948
$\Box LnM_{t-3}$	-0.232335	0.109731	-2.117308*	0.0366
$\Box LnY_{t-1}$	-0.004340	0.108600	-0.039961	0.9682
$\Box LnY_{t-2}$	-0.058432	0.078978	-0.739849	0.4610
$\Box LnY_{t-3}$	-0.037143	0.067948	-0.546640	0.5858
$\Box LnE_{t-1}$	0.004440	0.265264	0.016739	0.9867
$\Box LnE_{t-2}$	0.426981	0.266702	1.600965	0.1124
$\Box LnE_{t-3}$	0.190190	0.263652	0.721367	0.4723
LnM_{t-1}	-0.052809	0.106419	-0.496235	0.6208
LnY_{t-1}	-0.113973	0.122828	-0.927911	0.3556
LnE_{t-1}	-0.339203	0.112157	-3.024360*	0.0031

	0.234368
Adjusted R-squared	
F-statistic	3.984570
Prob(F-statistic)	0.000045

Note: * denotes statistical significance at 5 per cent or lower

5.3   Long-Run Effects

The co-integration test results under the aforesaid null hypotheses are summarised in Table 6. The critical values used were from Table C1.iii in Pesaran et al. (2001). In both models, the test statistics fell in the region between the lower bound and upper bound critical values even at the optimistic 10 per cent significance level, suggesting that the test was inconclusive. While this did not suggest a rejection of the co-integration hypothesis per se, it did not suggest evidence of the same either. However, at the 10 per cent significance level, the test statistics were notably much closer to the upper bound critical values than they were to the lower bound critical values. The inconclusive test result, therefore, tilted more towards not rejecting co-integration rather than rejecting it.

Table 6: Co-integration Test Results

Model	Null Hypothesis	F-Statistic	5% Critical Values		10% Critical Values	
			CV_L	CV_U	CV_L	CV_U
Export value	$\phi_1 = \phi_2 = \phi_3 = 0$	3.514	2.86	4.01	2.45	3.52
Import value	$\varphi_1 = \varphi_2 = \varphi_3 = 0$	3.615	3.23	4.35	2.72	3.77

Note: CV_L and CV_U are the lower bound and upper bound critical values provided by Pesaran et al. (2001).

Subject to the admissibility of this weak evidence of co-integration, the long-run sensitivities of export and import values to the real effective exchange rate were established through normalisation, as follows:

Export value model: $-\phi_3/\phi_1 = -0.809$

Import value model: $-\varphi_3/\varphi_1 = -6.423$

These normalised effects appeared large, but should obviously be interpreted in the context of statistical significance. The χ_1^2 Wald test statistics computed under the null hypotheses that $-\phi_3/\phi_1 = 0$ and $-\varphi_3/\varphi_1 = 0$ were respectively equal to 1.938 and 0.287, with probability values of 0.164 and 0.592. Thus, the evidence suggested that there were no significant long-run effects of the real effective exchange rate on either export or import values. Of course, this result was consistent with the observation that co-integration could not be unequivocally established at any conventional significance level. Although the lnE_{t-1} coefficient was significant in the import value model, this result was more spurious than credible.

5.3 Short-Run Effects

Table 5 above shows that all the first differences of the real effective exchange rate were insignificant at any conventional significance level in both the export value model and the import value model, and that the key source of the available explanatory power in the models was autoregressive terms. In the spirit of Granger-causality testing, the joint significance of each exogenous variable's lagged difference terms was evaluated as reported in Table 7. Clearly, the real effective exchange rate terms were completely unimportant (as were the income variable terms) in explaining both export and import values.

Table 7: Joint Short-Run Effects

Panel A: Export Value Model		
Effect	**Null Hypothesis**	*F*-**Statistic** *(p)*
Own	$\rho_1 = \rho_2 = \rho_3 = \rho_4 = 0$	21.559* (0.000)
Trade partners' GDP	$\delta_1 = \delta_2 = \delta_3 = \delta_4 = 0$	1.115 (0.354)
Exchange rate	$\pi_1 = \pi_2 = \pi_3 = \pi_4 = 0$	0.231 (0.952)
Panel B: Import Value Model		
Effect	**Null Hypothesis**	*F*-**Statistic** *(p)*
Own	$\gamma_1 = \gamma_2 = \gamma_3 = 0$	2.511 (0.063)
Malawi's GDP	$\lambda_1 = \lambda_2 = \lambda_3 = 0$	0.594 (0.620)
Exchange rate	$\eta_1 = \eta_2 = \eta_3 = 0$	1.217 (0.307)

Note: *(p)* denotes the probability of accepting the corresponding null hypothesis of joint insignificance. * denotes statistical significance at 5 per cent or lower.

6. Conclusion

This paper jointly examines the effects of the exchange rate on the aggregate trade balance in Malawi. Both the long-run effects postulated in the Marshall-Lerner condition, as well as the short run effects proposed by the J-curve theory were simultaneously explored. Separate export and import value models were estimated using the single equation error correction modeling framework proposed by Pesaran et al. (2001). Apart from the real effective exchange rate, the aggregate GDP of Malawi's key trading partners was included in the export value function, while Malawi's own GDP was allowed to explain the value of imports. The inclusion of a dummy variable for foreign exchange liberalisation in 1994 was unrewarding in both models, as was that of a trend term, even though both terms seemed to be suggested by a graphical depiction of the data generating processes.

The findings documented in the paper show that the trade balance in Malawi was not sensitive to the real effective exchange rate, both in the long-run and in the short run. Evidence of a long run equilibrium relationship could not be forcefully established in either the export value or the import value models. Even when this was optimistically assumed, the normalised exchange rate elasticities of export and import values were not significantly different from zero. Similarly, the exchange rate variable did not have any short-run effects on export or import values, both of which were only explained by their own lagged values in the short run.

These results suggest that exchange rate policy should focus more on other national considerations (such as influencing imported inflation) than the trade balance. They particularly support a contentious proposition that exchange rate policy can be applied to achieve welfare maximisation at no opportunity cost of deterioration in the trade balance. The results also suggest that the country's persistently precarious foreign reserve position is a result more of the unavailability of adequate reserves than the effect of currency overvaluation on trade.

It is quite possible that the results reported in this paper are a construct of aggregation bias, implying that a study of bilateral trade flows between Malawi and its individual trading partners might yield different results. Such reasoning could inform the direction of subsequent research.

References

Arize, A.C., 2001. Traditional Export Demand Relation and Parameter Stability: An Empirical Investigation. Journal of Economic Studies 28, 378-398.

Bahmani-Oshooee, M., 1985. Devaluation and the J-curve: Some Evidence from LDCs. The Review of Economics and Statistics, 500-504.

Bahmani-Oshooee, M., 1991. Is There a Long-Run Relation between the Trade Balance and the Real Effective Exchange Rate of LDCs? Economics Letters 36, 403-407.

Bahmani-Oskooee, M., and Goswami, G., 2004. Exchange Rate Sensitivity of Japan's Bilateral Trade Llows, Japan and the World Economy 16, 1-15.

Bahmani-Oskooee, M., and Ratha, A, 2008. Exchange Rate Sensitivity of US Bilateral Trade Flows. Economic Systems 32, 129-141.

Bickerdike, C.F., 1920. The Instability of Foreign Exchanges. The Economic Journal, March.

Cassel, G., 1918. Abnormal Deviations in International Exchanges. Journal, December, 413-415

Government of Malawi, 2011. Government of Malawi Budget Statement 2011-12. Lilongwe: Ministry of Finance.

Gupta-Kapoor, A., and Ramakrishna, U., 1999. Is there a J-curve? A New Estimation for Japan. International Economic Journal 13(4), 71-89.

Hsing, H., 1999 in Kamoto, E., 2006.

Junz, H.B., and Romberg, R.R., 1973. Price Competitiveness in Export Trade among Industrial Countries. American Economic Review 3, 314-327.

Kamoto, E., 2006. The J-Curve Effect on the Trade Balance in Malawi and South Africa. MA Thesis, The University of Texas at Arlington.

Koch, P., and Rosensweig, J., 1990. The Dynamic Relationship Between the Dollar and the Components of US Trade. Journal of Business and Economic Statistics 8(3), 355-364.

Lerner, A.P., 1944. The Economics of Control: Principles of Welfare Economics. New York: MacMillan.

Magee, S., 1973. Currency Contracts, Pass-Through, and Devaluation. Brookings Papers of Economic Activity 1, 303-323.

Malawi Savings Bank, 2011. Financial and Economic Report for January 2011. Blantyre: Malawi Savings Bank Limited.

Mangani, R., 2011. The Effects of Monetary Policy on Prices in Malawi. AERC Research Paper, African Economic Research Consortium (forthcoming).

Marshall, A., 1923. Money, Credit and Currency. London: MacMillan.

Metzler, L., 1948. A Survey of Contemporary Economics Vol 1. Illinois: Irwin.

Nadenichek, J., 2000. The Japan-US Trade Imbalance: A Real Business Cycle Perspective. Japan and the World Economy 12, 255-271.

Narayana, S., and Narayana, P.K., 2005. An Empirical Analysis of Fiji's Import Demand Function. Journal of Economic Studies 32, 158-168.

Ngalawa, H., 2009. Dynamic Effects of Monetary Policy Shocks in Malawi. Conference Paper, 14th Annual Conference of the African Econometrics Society. Abuja

Onafowora, O., 2003. Exchange Rate and Trade Balance in East Asia: Is There a J-curve? Economic Bulletin 5(18), 1-13.

Pesaran, H.M., Shin, Y., and Smith, R.J., 2001. Bounds Testing Approach to the Analysis of Level Relationships. Journal of Applied Economics 16, 289-326.

Reserve Bank of Malawi, 2009. Monthly Economic Review, July 2009. Lilongwe: Reserve Bank of Malawi.

Robinson, J., 1947. Essays in the Theory of Employment. Oxford: Basil Blackwell.

Summary, R.M., 1989. A Political-Economy Model of US Bilateral Trade. Review of Economics and Statistics 71, 179-182.

Tihomir, S., 2004. The Effects of Exchange Rate Change on the Trade Balance in Croatia. IMF Working Papers 04(65).

Appendix 1: Malawi's Major Trading Partners (2010)

Country	% of Total Exports	% of Total Imports	% of Total Trade
Belgium	-	16.73	5.16
China	5.93	3.28	5.11
Denmark	1.08	-	0.75
Egypt	0.34	8.31	2.80
France	1.78	-	1.23
Germany	0.88	4.16	1.89
India	5.42	2.05	4.38
Japan	1.71	-	1.19
Kenya	2.09	1.08	1.78
Mozambique	6.14	3.57	5.35
Netherlands	1.55	4.74	2.53
RSA	29.54	7.60	22.78
Russia	-	2.60	0.80
Swaziland	0.43	1.21	0.67
Tanzania	1.75	0.31	1.31
UK	3.73	4.93	4.10
USA	2.22	4.32	2.87
Zambia	3.95	3.97	3.95
Zimbabwe	1.41	4.65	2.41
Total	69.94	73.51	71.04

GoM, National Statistical Office (2010)

Appendix 2: Time Plots of the Variables (in Natural Logarithmic Form)
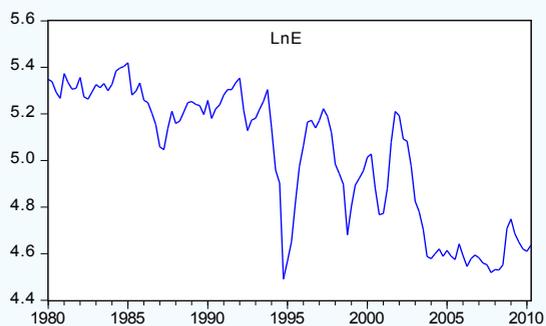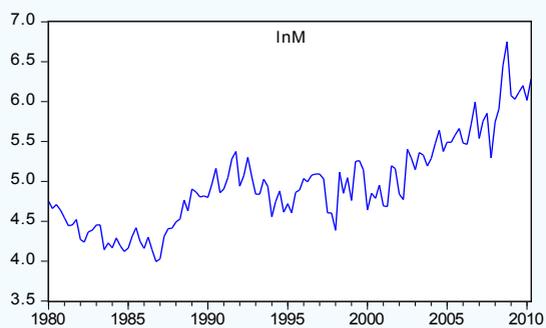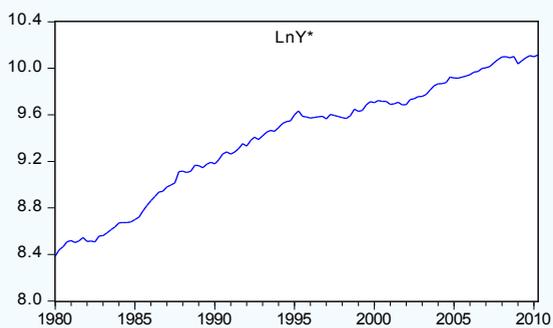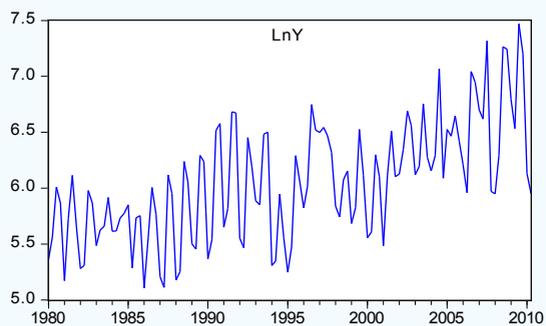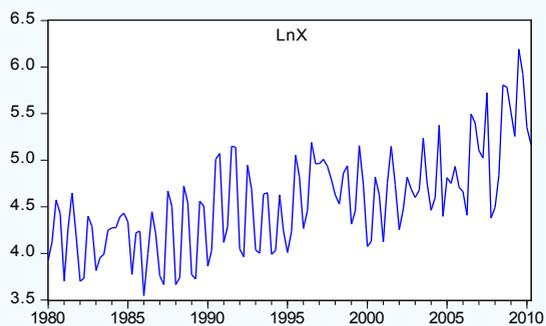
Climate Change Impact on sub-Saharan African Agriculture:

Some Implications for Africa's Agricultural Trade Potentials

By Molua, Ernest L.,[1] Reneth Mano, Suman Jain, Mbaye Diop and Alioune Dieng*

Abstract

Agriculture is a significant contributor to the national economies of African countries, providing income and food security to both producers and consumers. However, current dispensation in climate change has exposed local producers and exporters to new risks and challenges. Climate change is now an important sustainable development challenge, having opposite effects with its relationship to trade. Trade liberalisation affects the environment on scale basis (e.g. freer trade increases economic activity, energy use and greenhouse gas emissions), composition basis (e.g. a change in the mix of a country's production towards products where it has a comparative advantage) and technological basis (e.g. generating greenhouse gas emissions through the production and provision of goods and services). While this provides a clear link between trade opening and climate change, however, for some developing countries especially in sub-Saharan Africa, climate change correspondingly impacts on the production level of their principal agricultural exports. This paper presents an analysis of what kind of producer effects follow from climate change in selected African countries. Specifically, the paper shows that climate change lowers farm values for three African states: Senegal, Zambia and Zimbabwe. While climate change impacts on output levels and constrains sectoral revenue, it is potentially a significant impediment to export volumes and the expansion of agricultural trade. Meeting the ambitions for economic growth and human advancement in these countries require significant effort in agricultural production surplus and trade. The paper recommends a framework for the response of agriculture and trade policy due to changes in farm values and market potentials. The paper draws the conclusion that measures to mitigate impacts of climate change transcend borders and require solutions at both national and international levels as well, and that governments will require a policy mix that promotes production, ensures the adaptation of producers and enhances export supply response.

1. Introduction

International trade can play a major role in the promotion of economic development and the alleviation of poverty in developing nation states. Developed domestic production sectors and increased participation in international exchange allows countries to benefit from the increased opportunities and welfare gains that a multilateral trading system generates. However, for most developing countries especially in sub-Saharan Africa where agricultural products are a large component of exports, increased trade is constrained by not only limited domestic production capacity, financial and human capital but also by exogenous key inputs such as climate in the production process of the major exports from these countries. The future of Africa's agricultural trade will inherently depend on the extent and success of adaptation to uncontrollable forces such as climate on which the continent's agriculture depends.

The IPCC (2007) recognises that climate is changing and that the transformation of the global environment is due to many factors, including a decrease of the ozone layer, destruction of tropical forests and acid deposits and concentration of greenhouse gases. The ensuing increase in global temperature impacts on agricultural productivity which is highly sensitive to climate change. The effect of changes in climate on agricultural activities both physical and economic has been shown to be significant for low input farming systems, such as subsistence farming in developing countries in sub-Saharan Africa that are located in marginal areas and have the least capacity to adapt to changing climatic conditions (Rosenzweig and Parry 1994; Reilly and Schimmelpfennig 1999; Kates 2000; McGuigan et al. 2002).

Impacts on crop yields, agricultural productivity and food security vary depending on the types of agricultural practices and systems (Gbetibouo and Hassan, 2005; Kabubo and Karanja, 2007). There is growing evidence that further increases in global warming leading to changes in main climate variables – temperature, precipitation, sea level rise, atmospheric carbon dioxide content and incidence of extreme events – may significantly affect African agricultural production (Molua, 2003), with the result that the livelihoods of subsistence farmers and pastoral peoples, who make up a large portion of rural populations in sub-Saharan Africa, could be negatively affected. As shown in Figure 1, net per capita agricultural production has declined over 150 per cent from 1961 to 2006, for Senegal, Zambia and Zimbabwe possibly due to a plethora of factors. Some important questions that this paper seeks to answer include: How vulnerable is African agriculture to a changed climate? Does this vulnerability impede agricultural trade potentials? Primarily, this paper reviews and puts in perspective the extent to which the productive capacity of selected African countries: Senegal, Zimbabwe and Zambia are vulnerable to climate change and the associated implications on agricultural trade potentials.
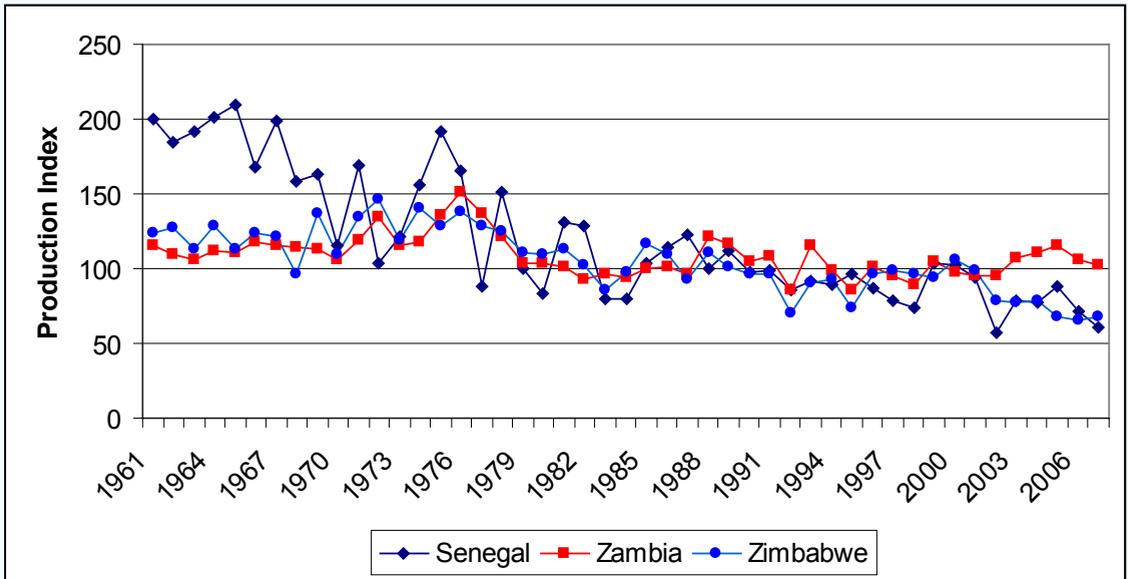
Figure 1: Net per capita Agriculture Production Index for Senegal, Zambia and Zimbabwe (base 1999-2001)

This study is important because current climate variation and ensuing climate change reinforce the vulnerability of African states whose economies are highly dependent on agriculture and natural resource exploitation. The special structural difficulties of the agricultural sector could without doubt be exaggerated by impending climate change, thus constraining the beneficial and meaningful integration into the multilateral trading system and the global economy. This paper is divided into six subsections. Section two reviews the current climate and associated evidence on climate change for the countries under study. Section three examines the nature of agriculture and trade patterns. Section four presents the source of and the empirical framework for measuring effect of climate change on agricultural profitability. In section five, the findings of current climate and projected climate change on farm returns and market capacity are presented. The paper ends with some policy implications, the attendant implications on agricultural trade and concluding comments in section six.

2. Climate Variation and Mounting Evidence of Climate Change

2.1 Senegal

Senegal lies in the Sudano-Sahelian zone, with a combination of geographic and atmospheric factors that determine its climate. The most important is the latitude, which gives the country its tropical character and the exposure to the ocean, which accounts for the climatic difference between the littoral and the interior lands. The differences in climate are also caused by the three winds (marine trade wind, continental wind and monsoon), whose movements are facilitated by a flat and monotonous relief (Leroux and Sagna, 2000). The rainy season between May and October lasts for six months in the south and three months in the north, with a north-south distributive gradient. The Sahelian region in the north of the country observes low annual rainfall (100–400mm), the Sudanese region in the centre has an annual rainfall of between 500mm and 800 mm, and the Guinean region in the south receives more than 800mm of annual rainfall (Leroux and Sagna 2000). One of the basic characteristics of the rainfall in Senegal is the strong inter- and intra-annual variability. A continuous decrease has been observed since the end of the 1960s, with marked inter-annual variability. The temperatures vary according to place and season. But the average temperature allows for at least two regions: a wide littoral zone in the north-west, with low temperatures during the dry season (because of the influence of the ocean) and the inlands charactersed by high mean temperatures.

2.2 Zimbabwe

As regards Zimbabwe, which is landlocked, three broad relief regions are generally recognised on the basis of elevation: the Lowveld (below 900m), the Middleveld (900–1200m), and the Highveld (1200–2000m). In addition, a narrow belt of mountains (2000–2400 m), the Eastern Highlands, runs north to south along the eastern border with Mozambique; and the deep cleft of the Zambezi River Valley forms the boundary with Zambia in the northwest. The climate is largely influenced by relief, as the rainfall increases with altitude. The mean annual rainfall varies from below 400mm in the extreme south of the Lowveld to above 2000mm on isolated mountain peaks in the East. Middleveld rainfall ranges from 500mm to 700 mm and that of the Highveld from 800mm to 1000 mm. The rainfall pattern is distinctly seasonal, with approximately 90 per cent falling in the six months from October to March. Much of the rain falls as intense tropical downpours and is characterised by its extreme variability in both space and time. Three seasons can be distinguished: a hot and dry spring from mid-September to the onset of the rains, a hot but moist summer covering the rainy season, and a dry winter period consisting of cool nights and warm cloudless days lasting from April to September. The annual deviations from its long-term mean shown in Figure 2 reveal that the last two decades have been driest in the country's history.
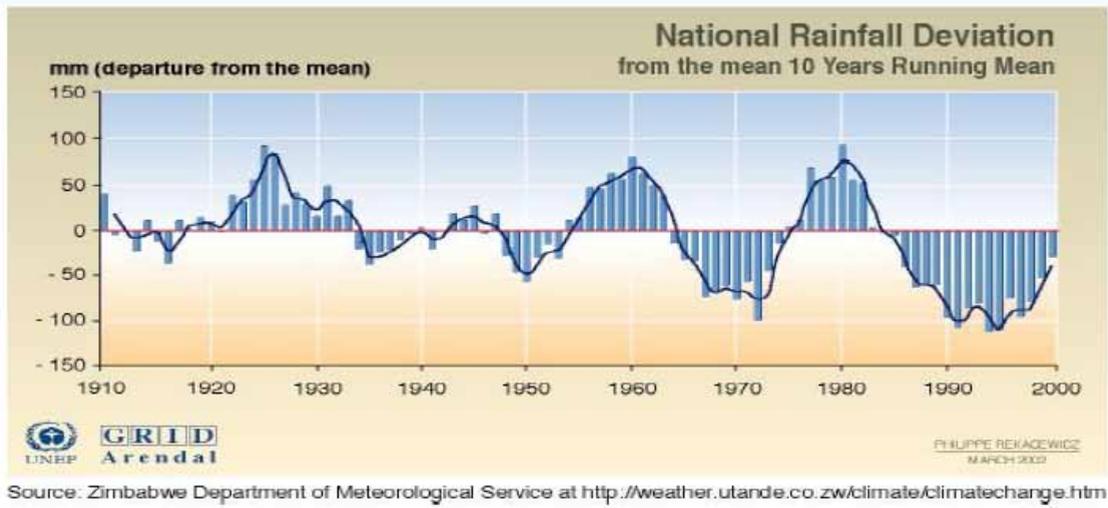
National Rainfall Deviation from the mean 10 Years Running Mean

Source: Zimbabwe Department of Meteorological Service at http://weather.utande.co.zw/climate/climatechange.htm

Figure 2: Long-term trends in temperature and rainfall in Zimbabwe: 1910–2000

2.3 Zambia

With respect to Zambia, the country is broadly divided into three agro-ecological zones, with rainfall being the dominant distinguishing climatic factor. The western and southern parts of the country receive less than 800mm of rain annually. This region used to be considered the bread basket of the nation, but for the last 20 years it has been experiencing low, unpredictable and poorly distributed rainfall. Currently it is the driest zone, very prone to drought and has limited potential for crop production. The central part of the country, extending from the east through to the west, is the most populous zone with over 4 million inhabitants. It receives about 800–1000mm of rainfall annually, which is evenly distributed throughout the farming season. The northern part of the country, with a population of over 3.5 million, receives over 1000mm of rainfall annually. The high rainfall in this region has resulted in the soils becoming leached. The annual rainfall anomalies indicate that of the 14 years from 1990-1991 to 2003-2004, at least ten years in each agro-ecological zone observed below normal rainfall. We further note that the variability in annual totals across the three agro-ecological zones has not been uniform. The southern zone has experienced more severe dry seasons than the central zone in the last 20 years. Zambia has experienced an increase in drought frequency and intensity in the last 20 years. The droughts of 1991-1992, 1994-1995 and 1997-1998 worsened the quality of life of subsistence farmers (Muchinda, 2001). The observed trends in temperature change over last 30 years for November–December, January–February and March–April, indicate that the summer temperatures in Zambia are increasing at a rate of about 0.6°C per decade, which is ten times higher than the global or Southern African rate of increase in temperature. The rate of increase is highest in November–December as compared to other periods across all agro-ecological zones (Hulme, 1996).

2.4 Africa

According to Nicholson (2001) one of the most significant climatic variations has been the persistent decline in rainfall in the Sahel since the late 1960s. Mean rainfall decreased by 20 to 40 per cent in the Sahel between the periods 1931-1960 and 1968-1997 and generally five to ten per cent across the rest of the continent. The trend was abruptly interrupted by a return of adequate rainfall conditions in 1994. This was considered to be the wettest of the past 30 years and was thought to perhaps indicate the end of the drought. However, dry conditions returned after 1994 (IPCC, 2001). Linear regression of 1901-1990 rainfall data from 24 stations in the West African Sahel yields a negative slope amounting to a fall of 1.9 standard deviations in the period 1950-1985 (Nicholson and Palao, 1993). For the years ahead, Hewitson (1997) simulates precipitation to increase over much of the African continent by the year 2050. Similarly, Hernes et al. (1995) and Ringius et al (1995) examined climate change scenarios for the African continent that showed land areas over the Sahara and semi-arid parts of southern Africa warming by 2050s by as much as 1.6oC and the equatorial African countries warming at a slightly slower rate of about 1.4oC. In effect, records show that the continent of Africa is warmer than it was 100 years ago (Hulme et al, 2001) and warming through the 20th century was at the rate of about 0.05 °C per decade, with slightly larger warming in the June, July, August (JJA) and September-November seasons than in December, January, February (DJF) and March-May (Hulme et al., 2001). The five warmest years in Africa have all occurred since 1988, with 1988 and 1995 the two warmest years. This rate of warming is not dissimilar to that experienced globally. Comparing data, the periods of most rapid warming (the 1910s to 1930s and the post-1970s) occur simultaneously in Africa and the world. The climate of Africa has experienced wetter and drier intervals during the past two centuries. The most pronounced periods were during the 20th century (IPCC, 2001).

3. African Agriculture and Trade Patterns

Agriculture plays a major role in the economy and society of most African countries, accounting for about 30 per cent of Sub-Saharan Africa's GDP, at least 40 per cent of export value and approximately 70 to 80 per cent of employment. In addition, two-thirds of manufacturing added value in most African countries is based on agricultural raw materials. Increased productivity in the sector is important for the continent's economic and social development. Growth in agriculture contributes to general economic growth, providing new engines of growth, particularly in the countryside, as well as an opportunity to substitute imports – and to generate exports. Small-scale farming dominates the sector and has an important role to play in combating poverty and promoting growth. For Senegal, Zimbabwe and Zambia, agriculture is considered the engine of economic growth, with strong multiplier effects throughout the economies.

3.1 Senegal

Senegal's geographical position provides many opportunities for trading agricultural products with the rest of the world. The Senegalese economy is heavily dependent on agriculture. From 1960 to 2003, on average 59 per cent of the population was primarily employed in agriculture, which accounted for 10 per cent of GDP (Gross Domestic Product) and generated 35 per

cent of all exports. This dependence reflects the heavy emphasis on the agricultural sector and the limited strength of the industrial sector. This is particularly problematic given that the agricultural sector is in decline: from 1960 to 2003, Senegal's GDP increased from 159 to 3761 billion CFA francs whereas the agricultural GDP decreased from 500 to 303 billion CFA francs. The average growth rate of Senegal's GDP was 1.5 per cent between 1960 and 1973 and 2.6 per cent between 1973 and 2003 (Sene et al., 2006). During this 44-year period, Senegal's GDP slowly increased, while the agricultural GDP decreased, and the population continued to increase. The GDP per capita, therefore, decreased at an annual rate of 0.5 per cent between 1960 and 2003. The agricultural sector now contributes only 8 per cent of the GDP and involves 59 per cent of the working population (DPS 2004). The important cereals produced in Senegal are millet/sorghum, maize and rice with respective yields of 670,843 tonnes, 108,233 tonnes and 162,228 tonnes in 1995. While increasing at an annual average rate of 1.62 per cent, total food production did not keep with the population growth until the early 1970s. This situation led to uncertainty in food availability and an overall poor economic performance.

The farming sector occupies an important place in the Senegalese economy because of the high proportion of the population it involves and its contribution to the GDP. It employs about 70 per cent of the working population and covers 2.3 million ha. It contributed 18.8 per cent to the GDP over the period from 1960 to 1986 and 11 per cent from 1987 to 1993, and contributes 8 per cent today (DPS 2004). This decline in the contribution of the farming sector is mainly due to the consecutive years of drought. Senegal has essentially rain-fed farming that represents 98 per cent of the farmlands (Sene et al, 2006). As shown in Figure 3, production of the staple crop millet observes a moderate correlation with rainfall. Senegal's rain-fed agriculture thus depends heavily on climatic conditions: the duration of the season and the distribution and abundance of rains. Yields and produce are directly subject to the climatic risk. The risk of drought is particularly high in the northern half of the country. The dependence of the agriculture on climatic conditions to a large extent explains the accelerating rural exodus: people leave their villages for the cities, searching for better living conditions. The agriculture sector is particularly large, based on small scale farms. Traditionally, limited use of irrigation has been made. It is used essentially during the dry season in the Niayes Valley, for market gardening, and in the Senegal River Valley, for subsistence farming. A further reason for the decline in the agricultural sector was the disengagement of the government in 1984, which had as its immediate consequence a decline in the level of equipment on farms and a reduction in the available funds and the availability and quality of seeds and fertilizers.
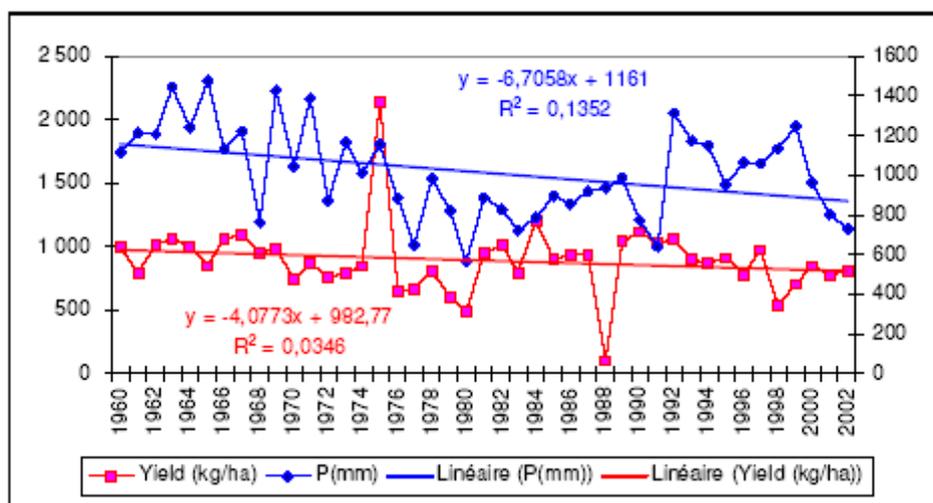
Figure 3: Annual rainfall and millet yield evolution in Kolda (1960–2002)

The main crops grown in Senegal are groundnuts, cotton, sugar cane and tomatoes (which are market crops) and millet, sorghum, maize, beans and rice (which are food crops). The two main crops, in terms of cropped area and yield, are millet and groundnuts. Some other crops are cassava, vegetables and fruit. While the country has a number of advantages on which agricultural development can lean, it faces several constraints, notably: the decline in farmers' net revenue, thus less cash for fertilizers and consequent soil degradation; a mismatch between the transfer of technology and knowledge and the actual needs of the farmers; lack of a suitable financing system; non-availability of good seeds, notably for groundnuts, and the damage to farm implements; lack of infrastructure for transporting produce to the marketplace; and lack of investment for modernising activities and industries, particularly in the breeding sub-sector. The consequences of these are reflected in Figure 4 depicting a more than 100 per cent decline in agricultural exports and corresponding surge in agricultural imports, possibly to compensate for shortfalls in production. While fish and tourism provide significant export receipts for Senegal, groundnut is the country's agricultural export leader. Exports of peanut products reached US$ 79 million in 2000 and represented 11 per cent of total export earnings. In 1997, Senegal's export of principally groundnuts (peanuts), cotton, fish, petroleum products and phosphates to Mali (18 per cent), France (9 per cent), Italy (6 per cent), India (6 per cent) and The Gambia (5 per cent) earned the country about US$ 1.7 billion. This provided resources to pay for almost US$ 4 billion worth of imports of food and beverages, capital goods and fuels from France (22 per cent), Netherlands (10 per cent), China (7 per cent), Thailand (5 per cent) and Belgium (5 per cent).
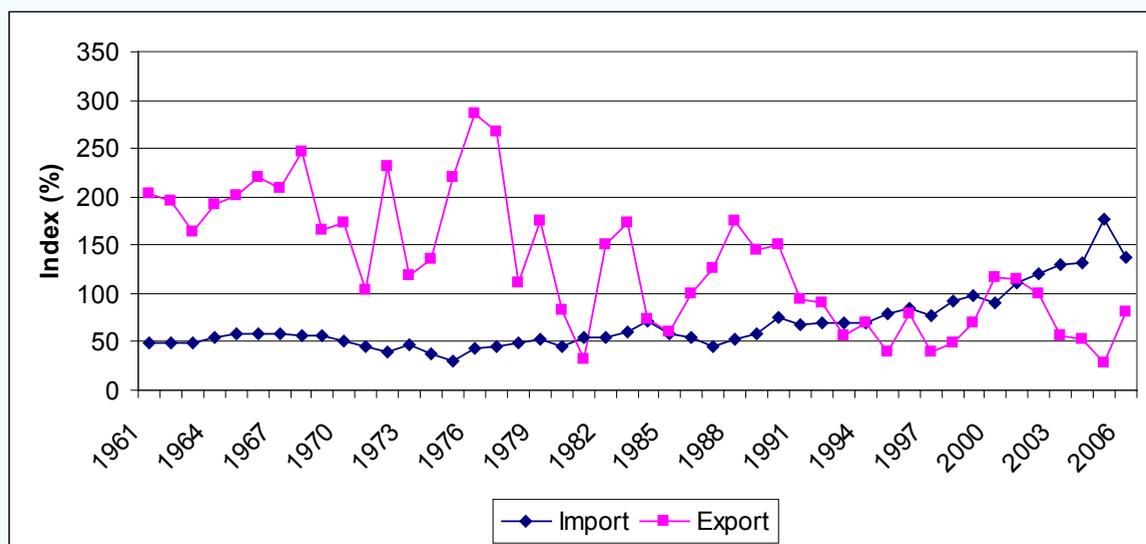
Figure 4: Agricultural Export and Import Quantity Indices Senegal (base 1999-2001)

3.3 Zimbabwe

Agricultural production in Zimbabwe is diverse compared with many tropical countries. Tobacco, maize, cotton and sugar dominate crop production, with wheat, coffee, sorghum, groundnuts, tea, citrus, coffee and vegetables making significantly smaller monetary contributions. Maize dominates crop production, covering more land than all other crops (approximately 1.5 million hectares). Tobacco production has steadily increased since 1980. Small scale communal farmers favour burley tobacco, mainly because it requires less rigorous curing. Dry-land cotton grown in the central and northern parts of the country and under irrigation in the Lowveld supplies the needs of the local textile industry and provides 70 per cent excess for export. Maize, sorghum and vegetables are the principal subsistence crops. Production for family consumption remains paramount in the majority of peasant farming areas, the dry agro-ecological zones of the country, while increasing quantities of maize and cotton are being marketed from communal areas in the higher rainfall agro-ecological zones. Cotton, sunflowers and groundnuts are the major cash crops for communal farmers. Peasant farmers now produce half the total cotton crop, 75 per cent of the sunflower and 80 per cent of the sorghum. Coffee has been promoted as a peasant crop in the Eastern Highlands but production remains low.

As in most developing countries, agriculture and the smallholder farming sector dominate Zimbabwe's economy. Agriculture provides employment and livelihoods to about 70 per cent of the population, including 30 per cent of formal employment, and accounts for between 40 and 50 per cent of the country's total export revenues. About three-quarters of Zimbabwe's population live in the rural smallholder farming sector and depend on agriculture for their livelihoods). In addition, the agricultural sector contributes about 17 per cent to the country's GDP (FAO 2005). Agriculture is also an important source of raw materials, providing about 60 per cent of raw materials for the manufacturing sector in the country (Bautista et al. 2002;

Poulton et al. 2002). The observed long-term trends in the key climatic variables of temperature and rainfall, and the growth rate of GDP contribution from agriculture show that over the years temperatures have been increasing and the rainfall pattern has been highly volatile and varying. There exist some correlations between long-term trends in temperature and rainfall and the growth rate of GDP contribution from agriculture, hunting, forestry and fishing (Mano and Nhemachena, 2006).

While agricultural exports have competed fairly with imports over a 45-year period, significant drought years as in 1993 have seen declines in exports and spikes in imports. In recent years as shown in Figure 5, agricultural imports have risen over 200 per cent from 1961 to 2006, and exports in 2006 returned to their 1960s level. In 2006, Zimbabwe received about US$1.8 billion for its cotton, tobacco, gold, ferroalloys and textiles exported to South Africa (36 per cent), China (7 per cent), Japan (7 per cent), Zambia (7 per cent), Mozambique (5 per cent), US (4 per cent), Botswana (4 per cent), Italy (4 per cent), Germany (4 per cent), and Netherlands (4 per cent), to defray imports worth US$2billion of imported machinery and transport equipment, chemicals and fuels from South Africa (43 per cent), China (5 per cent) and Botswana (3 per cent). For agricultural production and exports to regain the 1970s level, Zimbabwe will require its agriculture to overcome endogenous and exogenous constraints such as climate.
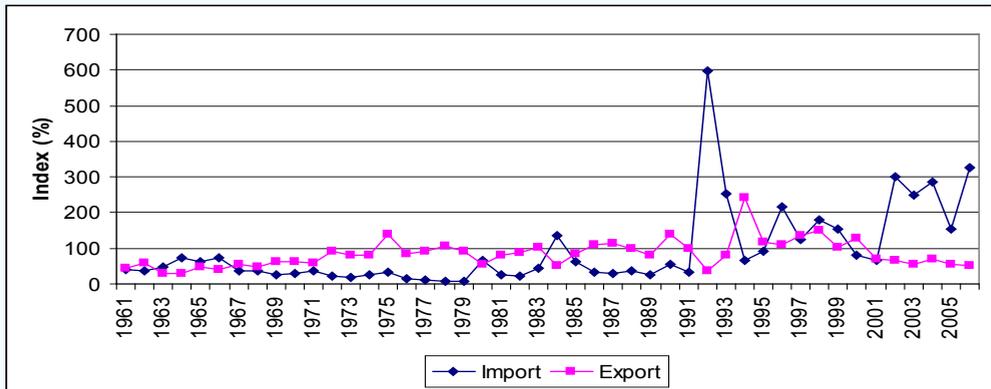
Figure 5: Agricultural Export and Import Quantity Indices for Zimbabwe (base 1999-2001)

3.3 Zambia

Agriculture is becoming an increasingly important sector in the Zambian economy since the mineral sector, which was the backbone of the economy from post-independence times (1964) till the late 1980s, experienced severe challenges including rising costs of production, lack of investment and volatile prices in world markets. The agriculture sector generates about 18 to 20 per cent of the country's GDP and provides a livelihood to more than 60 per cent of the population. It employs about two-thirds of the labour force. In 1991 there was a major shift in the country's agricultural policy with the liberalisation of the marketing of agricultural inputs and produce. This new policy has resulted in low agricultural productivity as subsistence farmers, who make up about 75 per cent of the entire farming community in Zambia, find difficulty in procuring farm necessities such as seeds and fertilizer in terms of accessibility and funds. Their difficulties are further compounded by the erratic seasonal rainfall patterns which

have been experienced in the country over the last 20 years. Agriculture in Zambia depends on rainfall to a very large extent (Jain, 2006; Kambikambi, 2006).

Since the 1990s, crop production in the country has faced negative impacts of extreme climate conditions which are believed to be manifestations of long-term climate change. Zambia has experienced some of its worst droughts and floods in the last two decades. Significant rainfall deficits at critical stages of crop growth have frequently led to a serious shortfall in crop production. Maize is a staple grain in Zambian meals. The yield during the severe drought of 1991/92 was less than half that of 1990-91. Notable shortfalls in maize yield were also recorded in the seasons 1972-73, 1979-80, 1981-82, 1983-84, 1986-87, 1993-94 and 1994-95, most of which were characterised as seasons with below normal rainfall by the Zambian meteorological department. Drought has been the biggest shock to food security in the country during the last two decades (MoA 2000; Muchinda 2001).

The impact of extreme climate conditions has been felt in substantial loss of livestock and fertile soil. Low productivity in the agricultural sector has contributed to a low GDP. In short, changes in the supply of rainfall, whether in the total volume or in its distribution within a season, have enormous consequences for agriculture in Zambia. As shown in Figure 6, maize production has been quite variable. In some years the yield has been only 40 per cent of the long-term average. Major factors contributing to this low yield have been the long dry spells within a season and the shorter rainfall seasons which have been experienced by the country in the past 20 years. Crop production data obtained from the Central Statistical Office (CSO) indicates that the major crop of the Southern, Central and Eastern Provinces is maize which occupies more than 70 per cent of the total area cultivated in these provinces. Maize yield in the Southern, Central and Eastern provinces shows a high positive correlation with the total seasonal rainfall (see Figure 6). Sorghum, a crop widely grown throughout the country, is promoted especially in drought prone areas as it is a drought tolerant crop. Sorghum production is being promoted to improve food security and revenues from trade in areas where short rain periods are frequent. Given the performance of the agricultural sector, agricultural trade was a significant contributor to the country's national income. In 2005 Zambia exported primarily copper, cobalt, tobacco, flowers, cotton, Maize and Sugar accruing about US$ 6 billion from goods shipped predominantly to South Africa (24 per cent), Switzerland (14 per cent), China (12 per cent), Tanzania (7 per cent), Democratic Republic of the Congo (7 per cent), Zimbabwe (6 per cent) and Thailand (7 per cent).
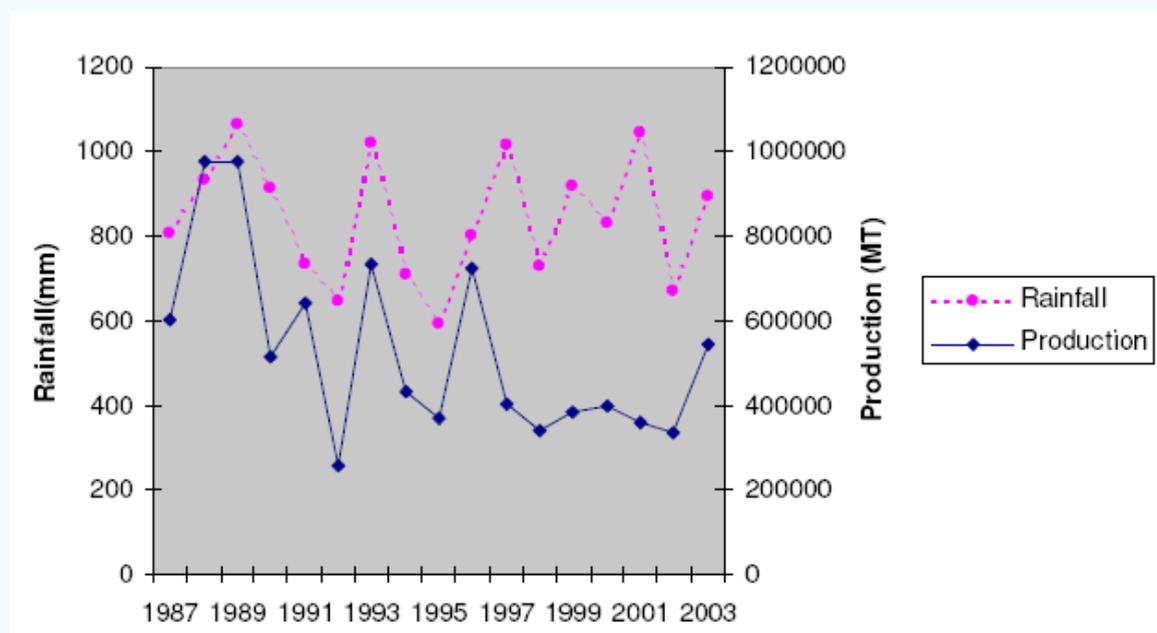
Figure 6: Rainfall and maize production for Central and Eastern provinces of Zambia

4. Impact on Returns to African Agriculture

4.1 The Nexus of Agriculture, Trade and Climate Change

While the IPCC (2007) named Africa as one of the world's regions worst affected by climate change, especially on issues of food security, the loss of surplus production could hamper even revenue generation from export trade. The IPCC notes, "food security in Africa is likely to be 'severely compromised' by climate change, with production expected to halve by 2020". Their report further warns that crop revenues could fall by as much as 90 per cent by 2100, with small-scale farmers suffering the most, and predicted that wheat production is likely to disappear from Africa by the 2080s, that soybean harvest in Egypt could drop by nearly 30 per cent by 2050, and that corn yields could fall significantly in Southern Africa. As implied in Figure 7, while agricultural imports could cushion the effect of production loss due to climate change, however this comes with increased cost from food import bills and a loss in revenue. That Africa realises a significant proportion of its income from agricultural trade highlights the crux of a long-term climate change that negatively impacts its already vulnerable agriculture. Very serious improvement is required internally, especially on the supply-side, if the continent is to improve its position in the global economy. Poor trade facilitation services, weak infrastructure and the lack of physical and human capital pose a major impediment to export sector development. Even in the face of climate change and trade facilitation constraints, African exports are handicapped by industrial country policies and trade barriers such as stringent sanitary and phytosanitary measures, tariff escalation and tariff peaks.
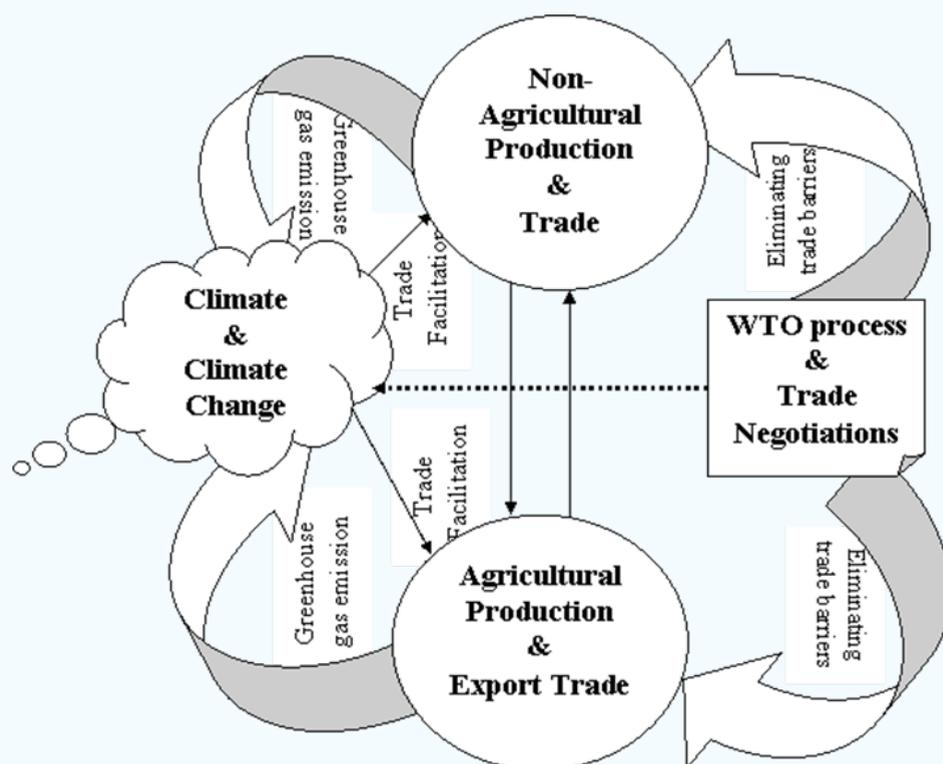
Figure 7: Agriculture, Climate Change and Trade Nexus (Authors' conceptualisation)

Substantial improvements in market access, reductions of all forms of export subsidies; and substantial reductions in trade-distorting domestic support by developed countries provide incentives not only for increased trade, but may also promote options for climate change adaptation and mitigation. Climate change, as positioned in Figure 7, is thus a challenge that transcends borders and requires solutions not only at national levels but also at the multilateral level. However, given that countries of the world are impacted differently by climate change, with possibly the least emitters of greenhouse gases such as sub-Saharan Africa could be hardest hit by climate change, special and differential treatment at the WTO may be required for such countries or regions. Trade concerns relating to impact and consequences of climate change ought therefore to be taken into account in multilateral trade negotiations, especially in the Agreement on Agriculture. This requires building on the Marrakesh Agreement establishing the WTO, in which members established a clear link between sustainable development and disciplined trade liberalisation, to ensure that market opening goes hand in hand with environmental and social objectives. In sum, therefore, climate change is an important sustainable development challenge as it intersects with international trade in a number of different ways, e.g. trade openness help efforts to mitigate and adapt to climate change, improve access to environmental goods and services, raise standards of living and the eventual demand for better environmental quality. So, while the schema recognises that the modernisation and reduced cost of transport, information technology revolution, industrialisation and more open trade and investment policies have given rise to expansion in global trade and eventual contribution to global warming and climate change, our focus is to unravel the link between climate change and agriculture and how it could be a disincentive for increased trade.

With climatic constraints, trade could influence the real earnings of land, labour and capital and provide incentives for reallocation of resources in an agrarian economy. The input market equilibrium shown in Figure 8 traces the transformation curve Z_1Z_2 on which the local economy could allocate resources for the production and export of Crop 1 and Crop 2. The relative price of Crop 1 is given by the slope of the line A_1A_2. Production at E is efficient (where the real value of the crop sector is maximised), and Crop 1 output is OX_1. Crop 2 output is OX_2 and the real sectoral value is OA_1 in terms of Crop 1. In the face of uncontrollable exogenous constraints, the transformation curve Z_1Z_2 falls as Crop 1 output declines. Its slope is equal to the relative price of Crop 1. A decrease in precipitation, *per se*, for the farming sector displaces the transformation curve to $Z_1{}^IZ_2$. When the relative price of Crop 1 is given by the slopes of the lines AA^I and BB^I the output point shifts from E to E^I. The value of the farming sector, measured in terms of Crop 1 declines from OA_1 to OB_1 and actual Crop 1 output declines from OX_1 to OX^I, but actual output of Crop 2 rises from OX_2 to $OX_2{}^I$. The farm economy shifts to Crop 2 to secure better revenue and protect income level.
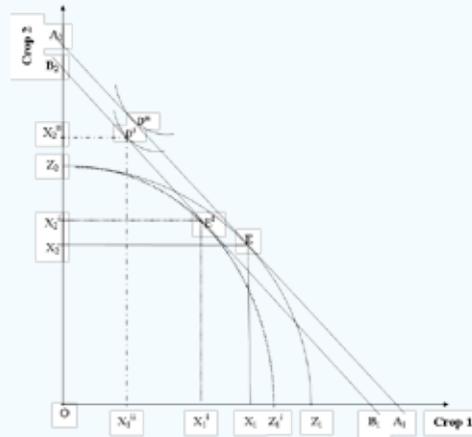
Figure 8: Farm Economy and Welfare Effects of Trade (Authors' conceptualisation)

The attendant loss in sectoral value may influence food security and consumer welfare. At a given point D, for instance, the consumer and producer effect could be deduced. For Crop 1, the producer effect is the decrease in domestic supply $X_1X_1{}^{II}$ and the consumption effect is the decline in domestic demand $X_1X_1{}^I$. For Crop 2, the production effect is the increase in domestic supply $X_2X_2{}^{II}$ and the consumption effect is the increase in domestic demand $X_2X_2{}^I$. Gains from international trade could therefore alleviate the strain on resource use and enhance resource reallocation. As the new budget line B_1B_2 lies to the southwest of the old equilibrium point E, it highlights a deficiency in the basket of commodities, containing less of Crop 1 and 2. These collections are inferior to the collection defined by E. Increased trade to meet consumers' need for more goods and producers' requirement for inputs will require perhaps a new budget line (from an injection) to the northeast of the equilibrium point E, or a shift in the transformation curve Z_1Z_2 possibly due to effects of innovation, research, extension or domestic capital formation; to a new unidentified equilibrium point that may include collection of goods containing more of Crop 1 and Crop 2. Alternatively, however, manipulation of trade barriers could realise this objective.

4.2. Analytical Framework and Data Generation[2]

4.2.1. Empirical Analysis

Socio-economic cross-sectional information is obtained for Senegal, Zimbabwe and Zambia. This information is fitted into a revised Ricardian model (Gbetibouo and Hassan, 2005; Kurukulasuriya and Mendelsohn, 2006). According to the Ricardian model[3] climate changes the production function of crops through fluctuations in temperature and precipitation (Mendelsohn and Dinar, 2003). Farmers take into account these fluctuations and adjust inputs accordingly. The production factors include commercial (land, different inputs) and non-commercial factors, such as climate, quality of soils and irrigation. The rationale is that cross-sectional observations across different climates can reveal the climate sensitivity of farms. The advantage of this empirical approach is the inclusion of the direct effect of climate on productivity, adaptation and market or trade responses by farmers to local climate. This approach makes it possible to compare the sensitiveness of different regions to climate change by connecting the inter-regional differences in the climate to the differences in land values and farm returns. An assumption is made that farmland net revenue (R) reflects the net productivity and costs of individual crops and livestock, and implicitly technically related as:

(1) $\qquad R = \sum P_i Q_i(X, F, H, Z, G) - \sum P_x X$

where P_i is the market price of crop i, Q_i is output of crop i, X is a vector of purchased inputs (other than land), F is a vector of climate variables, H is water flow, Z is a vector of soil variables, G is a vector of economic variables, and P_x is a vector of input prices. The farmer is assumed to choose inputs (X) to maximise net revenues given the characteristics of the farm and market prices. Each farmer is assumed to choose inputs and outputs to maximise their net revenue subject to the climate and soils of each farm, in addition to other key economic variables. The observed net revenue function is therefore the locus of maximum profits given the set of exogenous climate, soil, and economic conditions. The standard Ricardian model relies on a quadratic formulation of climate:

(2) $\qquad R = \beta_0 + \beta_1 F + \beta_2 F^2 + \beta_3 Z + \beta_4 G + \beta_5 \log(H) + \mu$

where m is an error term. Both a linear and a quadratic term for climate, F (temperature and precipitation) are introduced. This quadratic functional form for climate captures the expected nonlinear shape of the relationship between net revenues and climate (Mendelsohn, Norhaus and Shaw 1994; Mendelsohn, Sanghi, and Dinar 2001). Based on agronomic research and previously reported cross-sectional analyses, farm net revenues are expected to have a concave (hill-shaped) relationship with temperature (Mendelsohn and Dinar, 2003; Gbetibouo and

Hassan, 2005; Kurukulasuriya and Mendelsohn, 2006). For each crop, there is a known average temperature that is best for crop production, but this relationship is not necessarily concave for each season.[4] The marginal impact of a single climate variable, fj, on crop or livestock net revenue evaluated at the mean of that variable is:

$$(3) \qquad E\left[\partial R / \partial f_j\right] = \beta_{1,j} + 2\beta_{2,j} E\left[f_j\right]$$

These marginal effects can be evaluated at any level of climate or flow, but the focus is on showing effects at mean climate levels for Africa. Note that the linear formulation of the model assumes that the marginal effects are independent of future technological change. However, it is possible that future technological change could make crops and farming activity more susceptible to temperature or precipitation changes—or less so.[5]

4.2.2 Farm and Household Data

About 3000 farming households in the administrative districts of the three countries (Senegal, Zimbabwe and Zambia) are studied and information collected that allows for the estimation of net farm revenues for winter and the summer seasons. A database is generated with information on crop production, livestock, household characteristics, employment, type of crops grown, the area of land planted, the quantities harvested and sold, and various costs incurred for seeds, fertilizer, pesticides, light, heavy and light machinery and animals used in agricultural work; and farming related buildings. Farmers' access to information for farming activities and the sources and cost of this information, estimate of the farm household's total income for both farming and non-farming activities, taxes paid and subsidies received and farmers' perceptions of short- and long-term climate change and their adaptation strategies in response to these are generated and used for analysis.

4.2.3 Climate Data

Climate data on satellite temperature and ARTES precipitation (wetness) are used. The satellite data comes from the USA Department of Defense (Basist et al. 2001). The African Rainfall Temperature Evaluation System (ARTES) data is created by the National Oceanic and Atmospheric Association's (NOAA) Climate Prediction Centre of the USA (World Bank 2003). The ARTES data is based on ground station measurements of precipitation, minimum temperature, and maximum temperature.

4.2.4 Climate Change Projections

General Circulation Models based on climate change scenarios as input to a Water Balance model is employed to provide insights into the changes in hydroclimatic variables that can be expected under different climate change scenarios (Strzepek and McCluskey, 2006). The scenarios represent a range of equally plausible future climates (expressed as anomalies of the baseline 1961–1990 climate) with differences attributable to the different climate models

used and to the different emission scenarios that the world would follow. Three main scenarios derived from CSIRO2, HadCM3 and PCM in conjunction with the A2 and B2 emission scenarios. Consequences of these climate change scenarios on net crop revenues are estimated. The predicted changes for temperature and precipitation plus the impacts on crop net revenues for 2050 and 2100 are revealed. All three models predict increased temperatures by 2050, and even higher levels by 2100. All three models also predict falls in precipitation by 2100.

5.2 Farm Returns and Productive Capacity for Senegal, Zambia and Zimbabwe

5.2.1 Senegal

5.2.1.1 Impact of Current Climate

The Ricardian analysis shows that during the dry summer season, most of the households observe low gross revenues, because only a few farmers have some activities along the Senegal River basin, unlike during the rainy season which is the main agricultural season. These results must be seen in the context of 2002 that was characterised by a rainfall deficit and a very long dry spell. The consequence was low yields and the non-harvesting of cash crops such as groundnuts in many districts. The revenues remain small because small-scale farms lack adequate means to increase yields. The maximum gross revenue of US$1090 per farm per year is obtained in the Senegal River basin, where irrigation is largely used to develop market garden crops. The majority of farms have low gross revenue, less than US$500, and there are very few with more than US$1000. The yields do not exceed 1 tonne/ha for many of the crops, in particular for the dominant varieties of millet, groundnuts, cowpeas and sorghum. The highest yields are for the garden crops and fruit crops. About 15 per cent of the variance in farm revenues is explained by climate variables.

When production costs are examined an increase in temperature is observed to have a negative impact on net revenue, whereas an increase in precipitation has a positive impact on net revenue. This may be true for Senegal given that the climate in the country is already hot. So, crop production depends only on rainfall, which is highly variable. Seasonal variation reveals that in the rainy season, an increase in precipitation increases net revenue and an increase in temperature decreases it. In the dry season, an increase in temperature still decreases net revenue. That precipitation during the dry season decreases net revenue highlights the inherent risks from flash floods and increased runoff that destroys crops both in the fields and in storage barns. Household size, availability of male workers and the ownership of livestock have positive impacts on farm profits. This principally highlights the importance of diversification and the role of livestock in reducing the variability of crop production. Overall, both annual temperatures and seasonal precipitation show a positive relationship with farm net revenues, implying that after reaching a minimal point increases in each of these climate variables yield positive benefits to farm net revenues. Irrigation is also positive highlighting a policy message for the need for government and private sector to promote irrigation and improve net farm performances for smallholder farms. This would also imply the need to facilitate access to credit.

5.2.1.2 Marginal Impact of Climate

The marginal analysis regressions show that the effect of climate on revenue is non-linear in any case. Annual high temperature affects farm net revenues. A 1°C increase will be accompanied by an increase of US$15 increase in net revenue. In the same time a 1mm increase in precipitation gives an increase of US$16 in net revenue. Rainy season temperature is negative for net revenue whereas precipitation is positive. The implication of these results is that further increases in temperature in the rainy season are detrimental to agricultural activities, as indicated by the negative marginal. During the dry season, an increase in precipitation is beneficial to crop production.

5.2.1.3 Projected Impact of Global Warming

The simulations of an increase in temperature of 1.5°C combined with either a 8.5 per cent decrease in rainfall or 17 per cent decrease in rainfall, net farm revenues are negatively affected by further increases in temperature as well as by further decreases in rainfall. This reveals that agricultural production could be affected by climatic factors of high temperature and low rainfall.

5.2.2 Zimbabwe

5.2.2.1 Impact of Current Climate

Summer temperature and precipitation positively and significantly influence farm returns. This result is important given that much of agricultural production in Zimbabwe is concentrated during the summer period; therefore the positive relationship between farm net revenues and the weather is beneficial to farmers, particularly the smallholders who rely on rain for their agricultural activities. The autumn precipitation is negative, implying negative effects of increases in precipitation in this season, which coincides with crop maturity and harvesting when crops do not need any additional rainfall, therefore any increases in precipitation may lead to a significant decrease in farm net revenues as more rain reduces crop yields. The squared terms for most of the climate variables are significant, which is consistent with the hypothesis that the relationship between climate and net farm revenues is non-linear (Mendelsohn et al. 1994; 1996). The negative quadratic coefficients imply a hill-shaped relationship between net revenue and climate variables. The squared mean temperature for summer and squared mean precipitation for summer indicate an inverse quadratic relationship between net revenues and these climate variables. This result implies that increases in summer temperatures and rainfall tend to benefit farm net revenue, with diminishing marginal benefits up to a maximum turning point, after which further increases in these climate variables start to have negative effects on farm net revenues. The seasonal climate variables also have differential effects.[6] The irrigation variable is significant and positive in explaining the variability of net farm revenues and emphasises the importance of irrigation as a factor in helping farmers, particularly during the winter season and mid-season dry spells in summer. Farmers with access to irrigation can cushion themselves against the harsh temperatures and limited rainfall during the dry periods. There is also a positive relationship between net farm revenue and runoff as an additional source of water for farms with irrigation and a negative relationship for dryland farms. The possible

explanation for this is that increases in runoff are more beneficial to farms with irrigation compared to dryland farms that do not use any runoff. These results are consistent with the expectation that additional water will increase water availability for agricultural activities and augment rainwater in times of seasonal dry spells. In this case additional water sources in the form of runoff can be used as sources of water for irrigation during seasonal dry spells and help improve crop productivity and hence farm net revenues. These indicate that additional sources of water are very important for improving net farm revenue for farmers in the country.

5.2.2.2 Marginal Impact of Climate

Higher summer temperatures have mostly negative effects on net farm revenues, implying that further increases in temperature would be harmful to agricultural activities in the country. A further increase in summer temperature by 1°C would reduce net farm revenues by about $86 per hectare for all farms and about $98 for dryland farms and $76 for farms with irrigation. Increases in the spring temperature also decrease net farm revenues. However, increases in winter and autumn temperatures are beneficial to crops and increase net farm revenues by about US$34 per hectare for all farms and about US$45 for dryland farms and US$69 for farms with irrigation. An increase in precipitation has positive effects on net farm revenues, particularly for summer and spring. An increase of one millimetre in summer precipitation would result in an increase in net farm revenues of about $39, $31 and $25 per hectare for all farms, dryland farms and farms with irrigation, respectively. The increases in winter and autumn precipitation show almost similar results and both have positive effects on net farm revenues. The results point to the importance of more summer rain for successful farming in the country. More rainfall is associated with positive gains in net farm revenues, and the possible explanation for this observation is that there have been recurring droughts in the country since 2000. More rainfall will therefore be crucial for successful farming in most parts of the country. The elasticity results show that net farm revenues are highly sensitive to changes in climate and the elasticities are relatively high for both summer temperature and precipitation. This is the main cropping season and changes in climate variables in this season have relatively high impacts on net farm revenues compared to the other seasons. It is important also to note that dryland farms are highly sensitive to changes in temperature and precipitation and they are affected most by these changes, as they have relatively high elasticities.

5.2.2.3 Projected Impact of Global Warming

Simulation on changes in temperature by 2.5°C and 5°C and decreases in rainfall by seven and 14 per cent show that a 2.5°C increase in temperature would result in a decrease in net farm revenues by US$0.4 billion for all farms but increase net revenue for farms with irrigation by US$0.3 billion. For a 5°C increase in temperature, the results show that net revenues would decrease across all farms, dryland farms and farms with irrigation by US$0.4 billion, US$0.5 billion and US$ 0.003 billion respectively. A seven and 14 per cent decrease in precipitation would result in a decrease in net farm revenue by US$0.3 billion for all farms. This is evident that further changes in adverse climate variables of temperature and rainfall are detrimental to crop production in the country. Dryland farming is affected most by further increases in temperature and decreases in rainfall. Increases in temperature tend to be beneficial for farms with irrigation, implying that irrigation is important for sustaining agricultural production in

Zimbabwe and as an adaptation option for smallholder farmers. It plays an important role as an additional source of water for crop production, particularly during the dry season and during mid-season dry spells that can affect agricultural production.

CGM2 and HadCM3 predict a 4°C and PCM a 2°C increase in temperature in Zimbabwe in 2100. Rainfall redictions show that the CGM2 model predicts an average decrease of 10 per cent, the HadCM3 model an average decrease of 17 per cent and the PCM model an average decrease of 21 per cent for the year 2100. The CGM2, HadCM3 and PCM scenarios predict that by 2100 net farm revenues will decrease by US$0.8, US$ 1.3 billion and US$ 1.4 billion across all farms, dryland farms and farms with irrigation respectively. Further reductions in precipitation and increases in temperature in the country predict that farming would not be viable and thus there is an urgent need for the government and private institutions to develop ways of helping farmers adapt to these future negative climatic conditions.

5.2.3. Zambia

5.2.3.1 Impact of Current Climate

Net farm revenue is observed to have a non-linear relationship with the climate and runoff. Net revenue has a U-shaped relationship with November–December temperature, whereas the relationship of net revenue with the other two climate variables: January–February temperature and January–February wetness and the mean runoff variable is hill-shaped. Further analysis of the U-shaped relationship of net revenue with the November–December temperature, reveals that net revenue decreases through values greater than the sample mean value of 21.72°C for November–December and keeps decreasing up to 23.48°C (turning point) when net revenue is at its minimum. Analysing the hill-shaped relationship of net revenue with the average temperature of January and February, we note that net revenue increases as temp increases through values greater than the sample mean of 19.7°C and attains the maximum value at a temperature of 20.7°C. The marginal net revenue per hectare for an increase of 1°C in the mean temperature of January and February is US$315.70, indicating that if the temperature rises during the growing stage of the plant, this may have a positive effect on the crop. Usually temperatures are lower in January–February than in November–December. It implies that in the mean range of 10–20°C a 1°C increase in the mean temperature in January–February may have a positive effect on crop growth.

5.2.3.2 Marginal Impact of Climate

The marginal net revenue per hectare for a unit increase in the mean wetness index (20 per cent precipitation) for January and February is US$334.67. Since the negative coefficient of the square term confirms the hill-shaped relationship of the net farm revenue with variable January–February wetness, we deduce that a decrease of about 20 per cent in the precipitation for this period can reduce the net revenue by about US$ 334.67. The annual mean runoff and its squared term are both significant. The negative coefficient of squared runoff indicates a hill-shaped relationship of net revenue per hectare with the mean runoff. The sample mean of the mean runoff is 30.03cm, which lies on the left part of the hill-shaped curve of net revenue, indicating that the net revenue will increase per cm increase in mean runoff until the optimum

level (the turning point) which happens at 32.5cm. The marginal revenue for a 1cm increase in runoff from the long-term annual average is US$3.39.

On estimating the marginal net revenue per hectare for the current climate levels as a percentage of the observed mean net revenue per hectare, marginal net revenue per hectare for an increase of 1°C in the mean temperature of November and December is US$322.628, indicating that if the temperature rises at the beginning of the cropping season, when plants are germinating, this may have a negative effect on the crop. Losses of more than 100 per cent of the mean net revenue are attributed to the fact that in the event of crop failure or low harvest due to unfavourable climate conditions, the farmer's total loss will be the sum of the costs of the farm inputs (seeds and fertilizer) and the proportion of the gross revenue that he has lost, which he would have gained in a normal year.

5.2.2.3 Projected Impact of Global Warming

The various GCMs examined give varying predictions for future climate change for Zambia, which would on average reinforce observed precipitation deficits and increase irrigation requirements towards the end of the growing season (Kambikambi, 2006). Changes in temperature predicted by the examined models would result in gains in high potential zones but losses in medium and low potential zones, with the medium and low potential zones bearing the brunt of global warming. This means that a small increase in temperature would have immediate adverse effects on already dry areas. In general, agriculture in the country is expected to suffer more from decreases in rainfall than from rising temperatures.

6. Some Implications for Agricultural Trade and Concluding Remarks

This paper shows a significant impact of climate change on farm returns and a difference between the impacts of climate on irrigation and dryland farms. The study highlights the importance of small scale farms in Senegal, Zimbabwe and Zambia. These farms have low net revenues and depend not only on climate and soil factors, but also on the household's situation (machinery, fertilizer, labour, credit). While the results have important policy implications for African agriculture, an open trading system can help address volatility of agricultural revenue and prices, which are likely to be exacerbated by the impacts of climate change. The adverse climate and geography are compounded by fragmented infrastructure and unreliable supply chains.

Surplus production and market access are required for effective trade. Africa's integration into the global economy is paramount for increased trade, investment, and economic growth. Trade, investment and growth are the panacea for the continent's development challenge. While African countries are bogged down in sectoral effort to generate the resources they need to raise living standards, reduce poverty, and advance their social priorities, reinforcements on the development challenge by uncontrollable exogenous factors such as a varying climate and long-term climate change risks increasing the cost to local markets, trade and investment and postponing the panacea for growth. The predominance of small farms and weak integration of sub-regional markets make African countries particularly vulnerable to the vagaries of climate. While the growing openness and interconnection of the global economy provide an avenue for mitigation and adaptation to the climate change risk, climate change creates additional pressure to strengthen country competitiveness and increase scale economies. Climate change and the vulnerability of African agriculture make it harder to export reliably, efficiently, and competitively into global markets.

Overcoming production barriers and enhancing the agricultural trade potential for Senegal, Zimbabwe and Zambia would require linking climate change mitigation and adaptation measures with comprehensive trade capacity-building strategies. In this light, the adaptation of the agricultural sector and mitigation of negative effects of climate change must benefit from the Doha Round of negotiations, under the auspices of the WTO. The Doha mandate is circumscribed and does not refer to climate changes. At this stage, it may be too late to inject this in the negotiations. Invariably, enhanced market access and the substantial elimination of trade-distorting subsidies would level the playing field and enable African countries to increase production and benefit from increased prices for their commodities. The elimination of tariff and non-tariff barriers and a reduction in agricultural support in developed countries should provide incentive for stronger supply response, better coordinated export response and more efficient allocation of national and global resources in productive agriculture. Furthering trade opening would not only have a direct bearing on sustainable development, but could also contribute positively to efforts to mitigate and adapt to climate change. For instance, increased trade opportunities for Senegal, Zimbabwe and Zambia could lead to important income gains that could in turn enable poorer producers reduce their vulnerability to the effects of climate change by investing in irrigation and trade in monitoring and surveillance services important to offset the less predictable shifts in weather and productivity.

Acknowledgements

References

Alonso, W. 1968. *Location and Land Use: Toward a General Theory of Land Rent.* Harvard University Press, Cambridge. Basist A. et al., 2001. Using the Special Sensor Microwave Imager to Monitor Surface Wetness. *Journal of Hydrometeorology* 2: 297–308.

Bautista R.M., Thomas M., Muir-Leresche K. and Lofgren H., 2002. Macroeconomic Policy Reforms and Agriculture: Towards Equitable Growth in Zimbabwe. Research Report 128, IFPRI (International Food Policy Research Institute) Washington DC. http://www.ifpri.org/pubs/abstract/128/rr128.pdf

DPS, 2004. Situation économique et sociale du Sénégal. Ed 2002/2003, DPS-MEF.

Evans, A. 2004. *Economics, Real Estate and the Supply of Land.* Blackwell Publishing

FAO (Food and Agriculture Organization), 2005. FAOSTAT.

http://www.fao.org/ag/agl/aglw/aquastat/countries/zimbabwe/index.stm

FAO, 2009. *FAOSTAT: Statistical Database.* Food and Agricultural Organisation, Rome.

Gbetibouo G. and Hassan R., 2005. "Economic Impact of Climate Change on Major South African Field Crops: A Ricardian Approach." *Global and Planetary Change* 47**:** 143–152

Hernes H., Dalfelt A., Berntsen T., Holtsmark B., Otto Naess L., Selrod R. and Aaheim A., 1995. *Climate Strategy for Africa* CICERO Report 1995:3, University of Oslo, Norway, 83pp.'

Hewitson B.C., 1997: GCM Derived Climate Change Impacts on Regional Climate Variability. Fifth International Conference on Southern Hemisphere Meteorology and Oceanography, Pretoria, South Africa, American Meteorological Society, 24–26.

Hulme, M., 1996. "Climatic Change within the Period of Meteorological Records." In: Adams W.M., Goudie A.S., and Orme A.R. (eds.), *The Physical Geography of Africa.* Oxford University Press, Oxford, p. 88-102.

Hulme M., Doherty R., Ngara T., New M. and Lister D., 2001. "African Climate Change: 1900-2100." *Climate Research*, 17: 145-168.

IPCC, 2001. "Climate Change 2001: The Scientific Basis" *Report of Working Group I of the Intergovernmental Panel on Climate Change*, Geneva.

IPCC, 2007. "Climate Change 2007: The Scientific Basis" *Report of Working Group I of the Intergovernmental Panel on Climate Change*, Geneva.

Jain S., 2006. "An Empirical Economic Assessment Of Impacts of Climate Change on Agriculture in Zambia." *CEEPA Discussion Paper* No. 27, Centre for Environmental Economics and Policy in Africa, University of Pretoria, ISBN 1-920160-12-6

Kabubo-Mariara J., and Karanja F.K., 2007. The Economic Impact of Climate Change on Kenyan Crop Agriculture: A Ricardian Approach. *Global and Planetary Change* 57 (3–4):319–330.

Kambikambi T.T., 2006. "Cropwat Exercise Report for Zambia." *CEEPA Discussion Paper* No. 39, Centre for Environmental Economics and Policy in Africa, University of Pretoria, ISBN 1-920160-20-5

Kates R.W., 2000. "Cautionary tales: Adaptation and the Global Poor." *Climatic Change* 45: 5–17.

Kurukulasuriya P., and Mendelsohn R., 2006. A Regional Analysis of the Impact of Climate Change on African Agriculture. Mimeo. School of Forestry and Environmental Studies, Yale University.

Leroux M., and Sagna P,, 2000. Climat. In *Atlas Jeune Afrique: le Sénégal*, pp. 16–19. Paris: Jeune Afrique.

Mano R., and Nhemachena C., 2006. "Assessment of the Economic Impacts of Climate Change on Agriculture In Zimbabwe: A Ricardian Approach." CEEPA Discussion Paper No. 11, Centre for Environmental Economics and Policy in Africa, University of Pretoria, ISBN 1-920160-11-6

McGuigan C., Reynolds R., and Wiedmer D., 2002. Poverty and Climate Change: Assessing Impacts in Developing Countries and the Initiatives of the International Community. London School of Economics Consultancy Project for the Overseas Development Institute.

Mendelsohn R., and Williams L., 2004. "Comparing Forecasts of the Global Impacts of Climate Change." *Mitigation and Adaptation Strategies for Global Change* 9(4): 315–33.

Mendelsohn R., and Dinar A., 2003. "Climate, Water, and Agriculture." *Land Economics* 79(3): 328–341.

Mendelsohn R., Nordhaus W., and Shaw D., 1994. "The Impact of Global Warming on Agriculture: A Ricardian Analysis." *American Economic Review*, Vol. 84 (4): 753-771.

Mendelsohn R., and Neumann J., (eds.). 1999. *The Impacts of Climate Change on the US Economy.*

Cambridge University Press, Cambridge, England. Mendelsohn R., and Dinar A., 2003. "Climate, Water, and Agriculture." *Land Economics* 79(3): 328–341.

Mendelsohn R., Nordhaus W., and Shaw D., 1996. "Climate Impacts on Aggregate Farm Values: Accounting for Adaptation." *Agriculture and Forest Meteorology*,, 80 (1996): 55-67.

MoA (Ministry of Agriculture), 2000. *Agricultural Statistics Bulletin*. Early Warning Unit, Ministry of Agriculture, Food and Fisheries, Zambia.

Molua E.L., 2003. *Global Climate Change and Cameroon's Agriculture: Evaluating the Economic Impacts.* Publishers: Cuvillier Verlag, Germany. ISBN 3-89873-824-8.

Muchinda M., 2001. Drought Incidence in Zambia over the Thirty-Year period 1979/71–1999/2000. Second International Conference on Tropical Climatology, Meteorology and Hydrology. Brussels, Belgium, December.

Nicholson S.E., and Yin X., 2001. "Rainfall Conditions in Equatorial East Africa during the Nineteenth Century as Inferred from the Record of Lake Victoria." *Climatic Change*, 48:387–398.

Nicholson S.E., 2001. "Climatic and Environmental Change in Africa During the Last Two Centuries." *Climate Research*, 17:123–144.

Nicholson S.E., and Palao I.M., 1993, "A Re-evaluation of Rainfall Variability in the Sahel. Part I. Characteristics of Rainfall Fluctuations." *International Journal of Climatology*, 13:371–389.

Poulton C., Davies R., Matshe I., and Urey I., 2002. *A Review of Zimbabwe's Agricultural Economic Policies: 1980–2000*.http://www.imperial.ac.uk/agriculturalsciences/research/sections/aebm/projects/poor_ag_downloads/zimagback.pdf

Reilly J., and Schimmelpfennig D., 1999. "Agricultural Impact Assessment, Vulnerability, and the Scope for Adaptation." *Climatic Change* 43: 745–788.

Ringius L., Downing T.E., Hulme M., Waughray D., Selrod, R., 1996 *Climate Change in Africa—Issues and Regional Strategy*. CICERO Report No. 1996:8, CICERO, Oslo

Rosenzweig C., and Parry M., 1993. "Potential Impact of Climate Change on World Food Supply." *Nature*, 367: 133-138.

Sene I.M., Diop M., and Dieng A., 2006. "Impacts of Climate Change on the Revenues and Adaptation of Farmers in Senegal." *CEEPA Discussion Paper* No. 20, Centre for Environmental Economics and Policy in Africa, University of Pretoria, ISBN 1-920160-20-5

Strzepek K., and McCluskey A., 2006. "District Level Hydro-climatic Time Series and Scenario Analysis to Assess the Impacts of Climate Change on Regional Water Resources and Agriculture in Africa." CEEPA Discussion Paper No 13, Centre for Environmental Economics and Policy in Africa, University of Pretoria.

World Bank, 2003. *Africa Rainfall and Temperature Evaluation System*. World Bank, Washington DC.

Tariff Escalation and African Countries:

Who are the Real Friends?

By Alessandro Antimiani – INEA (Italian Insitute for Agricultural Economics),
Michele Di Maio – University of Naples "Parthenope";
Francesco Rampa[6] - ECDPM (European Centre for Development Policy Management)
Abstract

Tariff escalation is one of the major obstacles preventing developing countries from deriving significant benefits from trade. For this reason, tariff escalation is a key issue to analyse in trade negotiations. Unfortunately measuring tariff escalation is not an easy task at all. Different methodologies are provided in this paper to measure it. The analysis focuses on trade relations between nine African countries and some of the leading trading nations namely the USA, China, India, Japan and EU. First, using the WITS database, tariff escalation is examined using descriptive statistics in order to show a broad picture of the tariff structure which characterises the bilateral trade between African countries and those partners. An assessment is then made of the effective rate of protection using a CGE model through GTAP. Thereafter, tariff escalation is evaluated using both the traditional ERP and the OERP index by Anderson (1998). A comparative analysis is undertaken of the results of the two exercises highlighting their differences and complementarities.

1: INTRODUCTION

Market access remains one of the most important issues in the trading relations between developing and developed countries. Recently, the demand from developing countries in terms of market access has mostly focused on the reduction of distortions affecting trade in agriculture, in particular tariff peaks, tariff dispersion and tariff escalation. Among the issues related to market access, tariff escalation ranks among the highest (Ruffin, 2008). Tariff escalation, which occurs when higher import duties are imposed on processed products than on their input commodities, is one of the objects of controversy between developed and developing countries. For importing developed countries, tariff escalation implies advantageously low rates of duty on imported inputs in relation to the higher duties imposed on import competing finished products. For developing countries, however, tariff escalation is an obstacle to moving into higher stages of processing, shifting the economic activity toward primary production and away from processing (WTO, 1996). Among the reasons for which moving into higher stages of production is beneficial are: (i) escaping the deterioration in the terms-of-trade for primary commodities and the instability of primary product prices on international markets (Prebisch, 1959) ; (ii) enjoying higher employment opportunities and higher profits associated

---

6　　　　　**Corresponding Author: Francesco Rampa - E-mail: fr@ecdpm.org**

with the production of manufactured goods (Yeats, 1984); (iii) avoiding excessive exploitation of natural resources and damage to the environment caused by over-specialisation in primary commodities (Hecht, 1997).

While developing countries have emphasised the need to eliminate tariff escalation and developed countries (US, EU, Canada) have stated their intention to address this problem within the framework of the Doha negotiations, no firm solution has been agreed, although it looks like the proposal of the chairman of the Special Session of the Committee on Agriculture is broadly acceptable to all sides. One of the reasons why tariff escalation is still controversial is because it does not lend itself to an easy evaluation of its true impact on the growth prospects of developing countries.

This paper aims to make a contribution to the understanding and measurement of tariff escalation. The focus of the paper is on the trade relations between African countries and some of the leading trading nations, particularly the USA, China, India, Japan and the EU. While the existing literature on the subject is quite rich, this paper is different from at least three perspectives. First, the paper does not focus on specific products but rather on countries. In that context, four least-developed countries (LDCs) -- Ethiopia, Senegal, Tanzania, Uganda -- and six non-LDCs (Botswana, Cameroon, Ghana, Kenya, Nigeria, South Africa) African countries are examined. An analysis is undertaken with respect to the tariff escalation they face in their major market(s). The second element of interest is that account is taken of preferential trade agreements between the importing and exporting countries. This is particularly important when considering EU (Chevassus-Lozz and Gallezot, 2003) and other developed countries which also have preferential agreements with developing countries. Last but not least, this is the first paper to extend the analysis to China and India, whose trade with African countries is increasing at a fast pace.

The most challenging aspect of the analysis of Tariff Escalation (TE) relates to how to measure it in an accurate way. It is almost impossible to synthesise the information in one number. Whereas with tariffs each aggregation has its own limits, in the case of TE these problems are much more acute. An effort is made to present the information as clearly as possible using both descriptive tables with data for each country and proposing some synthetic aggregate measures. In particular, the most simple (and common) methodology to measure tariff escalation is used, with the difference between two subsequent stages of production (raw-intermediate; intermediate-final) being the preferred measure of tariff escalation. The first part of the paper shows a broad picture of the tariff structure which characterises the bilateral trade between African countries and its largest big partners. Data from the World Integrated Trade Solution (WITS), a software developed by the World Bank, and the Multilateral Trade Negotiation (MTN)[7] categories products description nomenclature are used to evaluate the tariff escalation. In the second part of the paper, the results from a simulation exercise carried out to measure the *Output Rate of Effective Protection* (OERP) are presented. The GTAP model is used to evaluate the magnitude of tariff escalation following a new approach, introduced by Anderson (1998), to have a theoretical based measure of effective protection able to solve some of the problems related to the standard ERP index (Antimiani et al., 2003).

_____

7   **Product concordances between MTN and HS classifications is available in the WITS website (http://wits.worldbank.org/wits/Presentation.html)**

The paper is structured as follows: Section 2 reviews the existing literature on the subject. Section 3 examines the dataset and the methodology used to measure tariff escalation. Section 4 describes the main results of the descriptive analysis and discusses which trade partner is the "best friend" of the sample African countries in terms of tariff escalation. Section 5 introduces and presents the results for the simulation exercise carried out using GTAP. Section 6 concludes.

2: LITERATURE

Although tariff escalation has been reduced, it still persists in many commodity chains. Tariff Escalation (TE) in agricultural markets is said to be a major factor compounding the difficulties faced by exporting developing countries, which hinders their export growth and diversification into processed products.

Recent analysis shows that in 12 out of 17 major commodity chains, significant TE exists, mostly at the first stage of processing (FAO, 2003). This is the reason why TE is one of the important market access issues being addressed in the current WTO negotiations on agriculture. The December 2008 Draft of Modalities for the Further Commitments in the context of the WTO Agreement on Agriculture (AoA), proposes steeper cuts in the higher tariffs.[8]

There is broad agreement among both economists and politicians on the importance of moving towards higher value-added production in developing countries. The basic idea is that what you export matters (Hausmann et al., 2007). Following this idea, developing countries have recently started to increasingly stress the need to move to value–addition production. To them, TE appears to be one of the stumbling blocks in this direction. It follows that the issue of TE has become crucial in evaluating the growth-enhancing potential provided by a reduction in tariff along the lines proposed in the Doha negotiations. Furthermore, the presence of TE also significantly counters the perceived preferences for the LDCs, especially considering that not all the major economies have implemented duty-free, quota-free access for all products originating in LDCs.

Among the issues of concern in the current debate are the implications of the proposed tiered tariff reduction formula on developing countries and the quantitative assessment of tariff escalation on the main value added export products. In this paper, attention is given to a more fundamental and preliminary issue and that is giving a detailed picture of the tariff escalation faced by a group of African countries in major markets. This task appears to be crucial in order to have a comprehensive analysis which reflects the reality. It appears that such an analysis is still missing for most African countries and it is hoped that this gap will be filled by this paper.

There are two main methodological issues involved in measuring TE. The first is about

8   **The last proposal is the following: "Instead of taking the cut that would otherwise apply to final bound tariffs in the band to which the processed product belongs (with the exception of the top band), the processed product shall take the cut that would, according to the tiered formula, otherwise be applicable to the tariffs that fall in the next highest band. A processed product in the top band shall be reduced by a cut which is equal to the cut that would otherwise have been applicable according to the tiered formula increased by 6** ad valorem **points: TN/AG/W4/Rev.4; 6 December 2008. paras 86 and 87 at p18.**

constructing the categories of products to be evaluated and the second is about tariffication. With respect to the data and the methodology to be used in measuring TE, literature has shown a large variety of dataset from which tariff values could be computed. Until recently, one of the most challenging issues in TE analysis was how to handle non-*ad valorem* tariffs. Several studies have tried in the past to use the most accurate method to convert non-*ad valorem* tariffs into *ad valorem* equivalents (AVEs). In recent times, with the readily and reliable data, it is now relatively easier to compute TE. In the present study, the UNCTAD Trade Analysis and Information System (TRAINS) dataset is used. Chevassus-Lozz and Gallezot (2003) show that preferences are to be taken into consideration to correctly evaluate the degree of tariff escalation. The issue of tariffication is very important considering the importance of the European Union to the selected African countries. As such, account is taken of the preferential agreements concluded by the EU with these countries.

The second issue concerns the way in which product categories are constructed. Again, there are neither any official methodologies nor any real consensus on the best approach that would help determine which products are used in the manufacturing of a processed product. Studies carried out by the WTO (1996) and the OECD (1999) relied on the Broad Economic Classification (BEC). They considered all products, including agricultural and agri-food products imported by thirty countries. In both cases, the analysis remained at a highly aggregated level by distinguishing three stages of transformation (raw, semi-processed and fully processed products). A selection of individual product pairs was then made for each of the three processing stages to identify nominal tariff escalation between them. Furthermore, as far as LDCs are concerned, a limit of the BEC is that for agricultural and food industry there are only four categories. Given that many LDCs are highly specialised in some sectors, it is quite difficult to figure out the level of TE using the BEC system. Another source of classification which has been widely used is the FAOSTAT classification system. It covers 226 processed commodities, that is, 377 commodity pairs. Each pair represents a processing relation between one input commodity and one output commodity. For instance, Lindland (1997) used this method to determine TE at the level of product "pairs" and distinguished 26 product pairs at the eight-digit level.[9] Other studies have instead used the scheme developed by the World Bank. For example, Amaji et al (1996) measured TE at the primary product level to analyse the structure of European tariffs on 19 primary commodities exported by African countries. Finally, some studies chose specific product pairs and constructed the relationship between primary products and processed ones (see, for example, Chevassus-Lozz and Gallezot, (2003) and Sharwa (2006). Chevassus-Lozz and Gallezot, (2003) adopted two different methodologies. First they used the BEC and subsequently a modified BEC employing information from experts to determine the technical relationship between the products considered. They covered all agricultural and agri-food products, but they measured tariff escalation not for pairs of products but at a more aggregated level by distinguishing three stages of transformation per commodity processing chain. They ended up with re-classification of the first 24 chapters of the CN8-digit nomenclature (i.e. all agricultural and agri-food products) by combining the two approaches. Similarly, Sharma (2006) chose some specific product lines and aggregated them in primary and processed forms. In the present study, the official classification elaborated by the WTO, namely the MTN is used.

9　　　　**For a few products more than two processing stages are taken into account (durum wheat – durum wheat flour – pasta without eggs for example).**

3: DATA AND METHODOLOGY

3.1: Dataset

With respect to tariffication, the TRAINS dataset is used. As regards product classification, the WTO classification system is used. There are two main reasons for this choice. First, by using an official classification system, arbitrariness in the choice of product categories and product process lines is minimised. Secondly, adopting an official classification system is a step in the right direction in terms of making it possible to undertake comparability studies and facilitating accumulation of knowledge on this topic. The MTN aggregates Agricultural and Industrial Products into broad categories of interest such as "Fish and Fish Products", "Tropical Beverages", "Transport Equipment", "Electric Machinery", "Petroleum", etc. For the purpose of our analysis, MTN is relevant since it covers 3 stages of processing, namely raw, semi, and finished product categories, each of which is subdivided into agriculture and industry[10]. With respect to other approaches, the MTN is sufficiently disaggregated (23 chapters plus petroleum or 51 headings plus 2 for petroleum) to evaluate trade and/or tariffs for stage of processing but not deriving from "author's choices". Regarding tariff escalation, having 3 stages of processing makes it possible to fully analyse the structure of trade policies.[11]

3.2: Methodology: Measuring Tariff Escalation

The primary objective of our paper is to present an evaluation of the TE faced by our sample of countries.[12]In the literature, numerous methodologies have been used. Most of studies used trade (import) weights to compute the average tariff, bound or applied, then many tariff lines apply to the same product. Tariff escalation is usually quantified on the basis of bound tariffs. Some studies also used applied tariffs to analyse the extent of TE in practice. Lastly, some studies have attempted to measure TE using the concept of effective protection (e.g. Lindland 1997; Burman and others 2001).[13]

The analysis presented below is based on nominal applied tariffs. Like the FAO (1997) and

10   **BEC take into account only 2 stages of processing.**

11   **For example, there may be cases of tariff escalation between raw and intermediate stages, while de-escalation could occur between raw and final stages. Consider the followingsupply chain: 20% on raw, 40% on intermediate and 10% on final. If the country which applies this scheme is highly specialized in producing and trading intermediate goods, it protects firms at the intermediate stage through tariffs and firms at the final stage through the national production of inputs?. If escalation is evaluated, it shows 20 percentage points of escalation between raw and intermediate and 30 percentage points between intermediate and final, so it could be the case of descalation by 10 percentage points. Availability of data on all the stages permits the detection of such cases.**

12   **Since access of LDCs to EU occurs essentially through preferential agreements, they are worried that their advantage will be eroded by the MFN tariff cuts agreed during the Doha Round. This issue is not addressed in this paper.**

13   **Effective protection is usually considered a better indicator of trade protection than nominal protection, especially where a processed product is produced from multiple primary products. But, in practice, its use is very difficult. Indeed effective protection for a large number of products or tariff lines is very difficult to compute as this requires input-output coefficients. This is elaborated further below.**

Sharma (2006), we measure nominal tariff escalation on the basis of nominal tariff wedge, i.e. the difference in tariffs between two subsequent stages of production. Nominal tariff wedge (TW) for a given period is defined as: $TW = T - t$ (1)

where T is the tariff on the given stage of production and t is the tariff on the previous stage. Three situations can be characterised based on the tariff wedge (TW):

• Tariff escalation: TW > 0

• Tariff de-escalation: TW < 0

• Tariff parity (neither escalation nor de-escalation): TW = 0.

4: WHO ARE THE REAL FRIENDS?

4.1: Tariff values

Given the use of the WITS database, all the tariff lines for which there is trade between the importing country and the selected African countries were considered. However, cases in which the importing country gives preferences but there is no trade are not considered. In the analysis, account was taken of all preferential agreements signed by all the selected importing countries.[14] This required basing our analysis on applied tariffs obtained from TRAINS by WITS -- and not on the commitments made by these countries at the WTO (bound rates).

4.2: Tariff Escalation

Tables 1 and 2 report the TE that the non-LDCs (Table 1) and LDCs (Table 2) African countries in our sample face in the importing countries. Each cell reports the TW for the corresponding MTN category.

Two observations concerning the methodology adopted to construct the tables are in order. First, where there is no preferential tariff at a given stage of processing, the MFN tariff is used. In other words, in such situations, tariff escalation was computed as the difference between the preferential tariff at the last stage and the MFN tariff of the previous stage. Second, in cases of de-escalation, TE is reported to be zero.

As regards comparing the degree of TE, we chose not to weight the tariff by import value or to implement any other weighting scheme. Rather, the tariff was measured across importing countries by using the simple average for the 25 MTN categories. The justification for this is one relating to endogeneity. Given that low imports (low weight) may be caused by a high tariff, the weighted measure of tariff escalation is likely to be biased. The use of simple tariff averages required the making of a fundamental assumption that if TE was the same across countries, they would be exporting the same products and the same quantity. In effect, what counts the most in the present analysis is the simple average. Consideration is not given to the level of importance a specific product may have in a country's (potential) export vector.

---

14   **This is an important element in the analysis. Indeed Chevassus-Lozza and Gallezot (2003) show that taking account of preferential agreements in the year 2000 shows that the phenomenon of progressivity in EU duties** vis- a- vis **developing countries was relatively minor except for countries benefiting from the GSP.**

Table 1: Non-LDCs: Tariff Escalation for 25 MTN Categories

Product		Botswana					Cameroon					Ghana					Kenya					Nigeria					South Africa				
		US	China	Japan	India	EU	US	China	Japan	India	EU	US	China	Japan	India	EU	US	China	Japan	India	EU	US	China	Japan	India	EU	US	China	Japan	India	EU
		Average																														
		Number of categories																														
		Percentage																														

Note: For each exporting country, each cell is the TE in the importing country for the corresponding MTN category calculated according to equation (1). For each country, the latest available data are used. The averages are simple averages in the importing country for all products. The number of categories gives the number of MTN categories for which TE is positive. The percentages are the percentages of MTN categories with positive TE in the importing country.

Table 2: LDCs: Escalation for 25 MTN Categories

Product		Ethiopia					Senegal					Tanzania					Uganda				
		US	China	Japan	India	EU	US	China	Japan	India	EU	US	China	Japan	India	EU	US	China	Japan	India	EU
0102	Wood,pulp,paper & furniture,semi-finished manufactures	raw vs intermediate																			
0103	Wood, pulp, paper & furniture, finished manufactures	intermediate vs final																			
0202	Textiles & clothing, semi-finished manufactures	raw vs intermediate																			
0203	Textiles & clothing, finished manufactures	intermediate vs final																			
0302	Leather, rubber, footwear, semi-finished manufactures	raw vs intermediate																			
0303	Leather, rubber, footwear, finished manufactures	intermediate vs final																			
0402	Ores & waste	raw vs intermediate																			
0403	Semi-finished manufactures	intermediate vs final																			
0503	Metal manufactures	intermediate vs final																			
0603	Chemicals, finished manufactures	intermediate vs final																			
0902	Electric machinery - Processed	raw vs intermediate																			
0903	Semi-finished manufactures	intermediate vs final																			
1102	Finished manufactures	raw vs intermediate																			
1103	Fish semi-processed	intermediate vs final																			
1202	Fish processed	raw vs intermediate																			
1203	Fruit & vegetables semiprocessed	intermediate vs final																			
1302	Fruit & vegetables prepared or preserved	raw vs intermediate																			
1303	Semi-processed	intermediate vs final																			
1403	Processed	intermediate vs final																			
1502	Processed	raw vs intermediate																			
1503	Semi-processed	intermediate vs final																			
1703	Processed	raw vs final																			
1803	Meat, prepared or preserved & other meat products	intermediate vs final																			
2203	Processed	raw vs final																			
2302	Other agricultural products, semi-processed	raw vs intermediate																			
2303	Other agricultural products, processed	intermediate vs final																			
	Average		2.1	4.4	3.0	2.7	0.0	1.8	4.9	2.6	2.7	0.7	1.7	4.4	3.5	2.7	0.0	1.8	4.4	3.0	2.7	0.0
	Number of categories		20	10	17	14	0	20	13	16	14	6	16	10	15	14	0	17	10	16	14	0
	Percentage		80%	40%	68%	56%	0%	80%	52%	64%	56%	24%	64%	40%	60%	56%	0%	68%	40%	64%	56%	0%

Note: For each exporting country, each cell is the TE in the importing country for the corresponding MTN category calculated according to equation (1). For each country, the latest available data are used. The averages are the simple averages in the importing country for all products. The number of categories gives the number of MTN categories for which TE is positive. The percentages are the percentages of MTN categories with positive TE in the importing country.

As can be clearly seen from Tables 1 and 2 above, for each exporting country there is TE for a large number of categories (from 0 per cent to 80 per cent) and there is TE in the tariff structures of all importing countries.

Table 3 below shows TE across importing countries. It reports the average TE in the selected importing countries for each of the specified African countries. It shows that the average TE is lowest in the EU and highest in China. Thus, China's tariff structure provides the most significant disincentives for African countries to process goods to be exported. Japan, India and the USA are between the two extremes in that order.

Table 3: Average Tariff Escalation by Country of Import

	USA	China	Japan	India	EU
Non-LDCs					
Botswana	1.83	4.17	2.91	2.70	0.00
Cameroon	1.32	4.17	3.67	2.70	0.00
Ghana	1.98	4.17	3.36	2.70	0.00
Kenya	2.16	4.17	2.51	2.70	0.00
Nigeria	1.66	4.17	2.74	2.70	0.00
South Africa	1.97	4.17	3.68	2.70	0.67
Average Non LDCs	*1.82*	*4.17*	*3.15*	*2.70*	*0.11*
LDCs					
Ethiopia	2.09	4.42	3.03	2.70	0.00
Senegal	1.75	4.94	2.61	2.70	0.00
Tanzania	1.73	4.42	3.49	2.70	0.00
Uganda	1.84	4.42	2.96	2.70	0.00
Average LDCs	*1.85*	*4.55*	*3.02*	*2.70*	*0.00*
AVERAGE	**1.83**	**4.32**	**3.10**	**2.70**	**0.07**

Note: *The average is the simple average of the TE imposed by the importing country on exports from African countries calculated on the 25 MTN categories.*

The use of an aggregated approach is justified considering the general characteristics of the trade policy regimes of the major importing countries, as far as trade with the selected African countries is concerned[15]. The EU preferential tariff structure is widely considered to be the most liberal vis-à-vis African countries.[16]. LDCs can export almost all their products duty-free, quota-free under either the "Everything but Arms" initiative or under the recently concluded Economic Partnership Agreements (EPAs), both of which offer substantially the same market access to the European Union. In effect, LDCs face zero tariffs for all their exports apart from arms and a few agricultural commodities such as rice, sugar and fresh bananas. The restrictions on these products are being phased out and they would eventually also enjoy duty-free, quota-free treatment. Non-LDCs that have signed the EPAs would have similar treatment, and those which are yet to sign would continue to benefit from the EU's GSP scheme, under which substantial tariff lines are duty-free, quota-free. The USA and Japan also have preferential trading schemes for the benefit of African countries, *albeit*, with more limited product coverage. The USA has the second lowest TE with respect to African countries, mainly because apart from its regular GSP scheme for developing countries, it has the dedicated Africa Growth and Opportunity Act (AGOA), which gives enhanced access to eligible African countries. A significant number of products enter the USA duty-free, quota-free. At the moment, China's tariff preferences are granted to only few African countries while India has no preferential scheme for Africa[17].

A look at the TE profile of each of the five major players indicates that it is only the EU and India whose profiles display homogeneous TE across African countries. In the case of the EU, the only exception is South Africa with whom it has a separate free trade agreement (called TDCA). The profiles of other major trading partners show a varying degree of TE. The tariff profiles also indicate that LDCs are not given more favourable treatment by the selected importing countries when compared to non-LDCs, whose exports face similar TE in these countries, even though there are dedicated preferential schemes such as AGOA and EBA in their favour. The lack of substantive differences in the treatment of LDCs and non-LDCs ignore the appeals by the WTO, the OECD and the World Bank for effective special and differential treatment to be provided to LDCs. Whereas in the case of the EU the degree of TE

---

15   **Again, our analysis does not take into account non-tariff barriers to trade: whether goods from African countries can actually be exported under the preferential tariff regime we describe depends in reality on the capability of the exporter to satisfy rules of origin and SPS or technical standards. Our measures of TE do not compare the impact of such non-tariff barriers on the actual incentives offered by the five trading partners to African countries**

16   **Again, our analysis does not take into account non-tariff barriers to trade: whether goods from African countries can actually be exported under the preferential tariff regime we describe depends in reality on the capability of the exporter to satisfy rules of origin and SPS or technical standards. Our measures of TE do not compare the impact of such non-tariff barriers on the actual incentives offered by the five trading partners to African countries**

1.   17   **Both China and India have recently announced their intention to extend Duty-free and Quota-free (DFQF) market access to LDCs.**

is insignificant, in India LDCs are not treated any worse than non-LDCs. Instead, in the case of the USA and Japan, LDCs are generally worse off than non-LDCs when it comes to tariff escalation. A country like Botswana, with more competitive manufacturing and export sectors than most LDCs, faces a much lower TE than LDCs like Ethiopia and Tanzania. Arguably, it is these poor LDCs which should be given incentives to move up the value chain under the preferential trade regimes of developed countries. In China, the situation is the same with some LDCs facing higher tariff escalation than non-LDCs. What is striking is that Senegal faces higher TE than other LDCs under China's tariff regime.

The TE profile of China merits special consideration given its burgeoning trade and investment relations with African countries. Given the size of the Chinese economy, and the potential for future growth of imports from Africa, with spill-over on income generation in African countries, the Chinese Government should consider liberalising its import regime *vis-à-vis* African countries, starting with the LDCs. This would be beneficial, as value addition for African exports going to China would entail increased interaction in terms of investment and facilitate greater collaboration between African and Chinese enterprises, with possible benefits in terms of capital, technology and knowledge transfer as well as the much needed financial resources for the African processing sector. The apparently worse treatment by China of LDCs compared to their non-LDCs should be urgently addressed.

As two leading economies in the developing world, China and India should endeavour to adopt preferential schemes which would significantly reduce barriers to trade from LDCs, including the elimination or significant reduction of tariff escalation. It could be argued that the significant TE displayed in the tariff profiles of the USA and Japan, in a way, is more serious for African countries than the TE they face in China and India, which are still considered as developing countries by the WTO and may still face legitimate challenges in terms of domestic food security and poverty reduction. The so-called QUAD countries (Canada, EU, Japan and the US) are among the largest traders in the world and the major importers of African exports and are under pressure from public opinion and international organisations to adopt positive trade measures to support African plans to move out of merely exporting primary goods into manufacturing with increasing value addition. QUAD countries do maintain preferential schemes and have pledged to adopt further measures to facilitate the full integration of African countries into the multilateral trading system. The analysis, however, shows that, with the exception of EU, greater efforts need to be undertaken to address TE. The large trading partners, in the spirit of improved cooperation with poorer countries, should converge towards the best possible preferential regime for African countries by matching the EU's regime. The OECD countries should make these improvements a priority and fulfil their pledges to support export-led poverty reduction strategies to assist African countries to trade their way out of poverty. In particular they should offer LDCs more favourable treatment also in terms of TE to give an incentive to the African economic actors to move up the value chain.

5: AN ALTERNATIVE: DETERMINING THE UNIFORM "REAL" TARIFF USING THE OERP INDEX

In literature, the issue of tariff escalation is sometimes strictly related to one of effective protection. The two concepts are related even if quite different. It is easy to show that an effective protection of the production process should not necessarily result in TE. But, conversely, where there is TE, there would be effective protection of the transformation process. The two concepts are also similar given the fact that there is no unique or commonly agreed methodology to calculate a synthetic measure of TE, the same difficulties are encountered in measuring ERP. While the ERP has some advantages with respect to measuring TE as the difference between tariffs at the different stages of production, it also suffers from acute methodological limitations. For the sake of comprehensiveness, the effective rate of protection in the selected importing countries is measured. However, the standard ERP is not used because of the reasons below.

5.1: Some Problems related to the Concept of ERP

The Effective Rate of Protection (ERP) can be defined as the proportional increase in the price of a sector's gross output relative to free trade. Since the total value of gross output priced at value added per unit equals the total value of net output valued at equilibrium prices, an appropriate price for gross output is the *value-added per unit*. Accordingly, the ERP of industry j (E_j) measures the increase in industry's value added per unit of output under protection (V_j') as a percentage of the free trade value added per unit (V_j):

$$E_j = \frac{V_j' - V_j}{V_j} \; . \qquad (2)$$

Assuming that one unit of output j necessitates the use of a_{ij} quantity of inputs i, we can write:

$$V_j = p_j - \sum_i a_j p_i$$

$$V_j' = p_j^*\left(1 + t_j\right) - \sum_i a_j p_i^*\left(1 + t_i\right) \qquad (3)$$

If $c_{ij} = a_j p_i^* / p_j^*$ is the cost share of input i in output j, after simplification we get:

$$E_j = \frac{V_j' - V_j}{V_j} = \frac{t_j - \sum_i c_j t_i}{1 - \sum_i c_j} \; . \qquad (4)$$

The traditional definition of the ERP is based on restrictive assumptions (fixed coefficient and/or separability) regarding the production functions (Anderson and Naya, 1969). If the assumption of fixed physical input coefficients does not hold, free trade input-output coefficients must be inferred from the observed distorted co-efficients (Bureau and Kalaitzandonakes, 1995). The fundamental theoretical critique moved to the effective protection concept, though, stems largely from concerns about drawing general equilibrium inferences from a partial equilibrium measure (Ethier, 1971, 1977; Bhagwati and Srinivasan, 1973; Davis, 1998). The development of the concept of effective protection, as a matter of fact, may be seen as an attempt to define the index as a pure production concept – expressed in terms of nominal prices and

input coefficient – making enough assumptions so that demand might be ignored: "Effective protection is the ranch house of trade policy construction – ugly but apparently too useful to disappear" (Anderson, 1998). Also in terms of the possibility for the ERP to be good predictors of gross outputs changes, effective protection is a partial equilibrium index, since in reality the prices of primary (non-produced) factors are endogenous, and the prices of (internationally) non-traded goods may change as well. As a consequence, even if the fixed coefficient assumption is met, ranking effective rates may not allow ranking percentage output changes: a non-prohibitive import tariff or export tax in partial equilibrium might become prohibitive in general equilibrium (Anderson, 1970).

5.2: Our Analysis

To measure the effective protection granted by a country's trade policy regime, some important hurdles need to be cleared. As previously noted, one of the main issues is finding a single "measure" to compare trade policies in terms of effective protection. To solve this problem using a theoretically sound aggregation procedure, it is necessary to specify the type of information to be maintained: the single "measure" has to be *equivalent* to the original multiple data with respect to the preferred dimension. According to Anderson and Neary (1996), a general definition of a policy index is as follows: depending on a pre-determined reference concept, any aggregate measure is a function mapping from a vector of independent variables – defined according to the policy coverage – into a scalar aggregate. The greatest advantage of this approach is that it is theoretically consistent, since the equivalence is determined according to a fundamental economic structure. Second, it provides unequivocal interpretation of the results, since the definition and properties of these "equivalence-based" indicators are predetermined. To cope with some of the problems related with the standard definition of ERP, Anderson (1998) suggested an interesting new definition of an ERP index: the *distributional effective rate of protection*, which is the uniform tariff which is equivalent to the actual differentiated tariff structure in its effects on the rents to residual claimants in a given sector. The same approach can be used to define an index which is able to measure the impact of protection on the ability of sectors to compete with other industries in factor markets: the *Output Effective Rate of Protection* (OERP), which is the uniform tariff on all distorted sectors which produce the same level of output, sector by sector, as does the initial differentiated tariff structure (Anderson, 1998).

In this section the OERP is applied, that is an index which, focusing on gross (rather than net) output, is able to take into account the role of the protection provided to the intermediate inputs. The OERP e_j of sector j in general equilibrium is defined as the uniform tariff which exert on the output of j an effect which is equivalent to the initial tariff structure. That is:

$$e_j : Y_j\left[p_j^e, w^e\left(p_j^e, v\right)\right] = Y_j^0\left(p^0, w^0\right), \text{ with } p_j^e \equiv p_j^*\left(1 + e_j\right). \tag{5}$$

where Y_j is j supply function, and w is the vector of competitive factor prices (w is function of the price vector p and of the fixed factor supply v). The previous definition is based on the "small country" assumption. Allowing for endogenous world prices, vector p has to be defined as a function of the tariff vector (t). Equation (11) becomes:

$$e_j^w : Y_j\left[\left(1 + e_j^w\right)p_j^*(t), w^e\left(\left(1 + e_j^w\right)p_j^*(t), v\right)\right] = Y_j^0\left[\left(\left(1 + t_j^0\right)p_j^*(t), w^0\left(\left(1 + t_j^0\right)p_j^*(t), v\right)\right)\right] \tag{6}$$

where (e_j^w) is the OERP uniform tariff with endogenous world prices.

Output variations across sectors reflect both the structure of protection (which the "standard" effective protection index tries to measure) and differences in the production structure of the economy. The two questions, "how much protection is given" and "how much does supply change as a result" are distinct, and the OERP gives a precise answer to the latter.

Nowadays, the development of computable general equilibrium models implies that the ERP can be computed as a general equilibrium index summarising all the model information (Stevens, 1996). In this section, the effective (rate of) protection is assessed using a CGE model through GTAP. The main difference with the standard ERP is that our measure is derived in the context of general equilibrium. Simulations have been carried out using the Global Trade Analysis Project (GTAP) model and its database, based on the latest release of version 7, providing a baseline with reference to the year 2004. The GTAP model is a computable general equilibrium (CGE) model based on Input Output tables (IO), representing 57 activities and 113 countries. Given the focus on establishing the level of effective protection, the 2001 database of GTAP is used, which includes a new input-outputs table for Africa, updating the tariffs to 2004. Using this baseline, TE is evaluated by both the traditional ERP and the OERP index by Anderson. In our version, the database was aggregated to include 14 regions/countries and 19 sectors (Table 4), taking all the raw agricultural products disaggregated and having a single sector for food, for which an evaluation of the level of effective protection is to be undertaken.

Table 4: GTAP Data Accounts

Commodities and Activities	Factors
Paddy rice	Land
Wheat	Labour skilled
Other cereals	Labour unskilled
Vegetables and fruit	Capital
Oil seeds	Natural resources
Sugar cane and beet	Regions
Plant based fibres	China
Other crops	India
Cattle, sheep, goats and horses	Japan
Other live animals	USA
Raw milk	EU25
Wool and silk	Uganda
Forestry	Tanzania
Fishing	South Africa
Minerals	Senegal
Food sector	Nigeria
Garment sector	Ethiopia
Manufacture	Botswana
Services	Sub-Saharan countries
	Rest of the World

Trade policy at the tariff line level implies a level of detail by far higher than any existing model can allow for: the EU tariff schedule, for example, includes more than 10,000 tariff lines. Therefore, to reach the consistency between the information on trade distortions and the model aggregation, it is necessary to compute various kinds of average tariffs. However, the quality of trade distortion data which is included in the exercise has considerably improved when compared to those in earlier existence, due to the use of the MacMap-HS6, which is a database including HS-6 level details, and which provides consistent and exhaustive *ad valorem* equivalents (AVEs) of applied border protection across the world. This improvement allows considering applied/preferential tariffs rather than bound rates, and includes the AVEs of some NTBs (Bouët et al., 2005). A positive OERP means that a positive uniform rate would be needed to maintain the output of a given sector, i.e. if the food sector has to be "protected" in a bilateral free trade scenario. A negative OERP means that the sector would be fairly competitive even in the absence of any protection.

To complete the analysis, the OERP is evaluated for the food, industry and wearing sectors.[18] Table 5 reports the results of our analysis of the OERP index. The data show that – using OERP as our measure of effective tariff protection – the USA is the most liberal in terms of imports from selected African countries, followed by the EU25 and China. India and Japan show the highest ERP. In the case of India, the reason is that it does not maintain a preferential scheme for African countries. For Japan, the reason is the fact that it has a number of high tariff peaks and that its preferential tariff regimes are more focused on Asia-Pacific countries. While China shows almost the highest TE in all the cases, the third position is not surprising considering that it only acceded to the WTO in 2001 and its obligations were phased in. In effect, the general equilibrium analysis shows that China does not have a significant effective protection, probably due to a relative "world-wide" high efficiency.

Differences in efficiency explain also some results like the value for USA with respect to Tanzania (41 PER CENT) and the one of EU25 with respect to Ethiopia. These results are not quite surprising if account is taken of the differences in the efficiency of the food industry technology in the various countries. As mentioned above, for the USA and the EU, the food sector would be fairly competitive, even in the absence of any protection, so that an import subsidy would be necessary to maintain output unchanged. On the contrary, the effective protection for USA and EU with respect to South Africa is high, given the relative competitiveness of South Africa as compared to other countries. To further illustrate this point, it is worth to note results for USA with respect to Uganda and Tanzania. While the trade policy of the USA toward these countries is identical, the results in terms of OERP are strongly different, due to the different value added structures of the two African countries.

Considering the value for the food sector, the most liberal of the selected importing countries is the US, followed by China and EU, and then India and Japan. It is not surprising that India

---

18   **Due to a computable time limit (many sectors and countries considerably expand time running of the model) and to the desegregation between raw and final of manufacturing products in the GTAP database (there is not a clear division between input and final goods in the manufacturing sectors) we plan to perform such an analysis in a second step.**

and Japan do not fare well in the analysis. India does not maintain a preferential tariff regime and probably its food sector is not yet fully developed. Japan displays some high tariff peaks as far as certain food products are concerned and in addition its preferential tariff regimes are focused more on Asia-Pacific countries. The EU and the US are comparable due to the fact that they both have preferential schemes for African countries and also because of the efficient food sectors as compared to those in the selected African countries. As pointed out, in the case of China, it could be explained by low MFN tariffs worldwide and the competitiveness of its food sector, particularly the state trading enterprises. Furthermore, it should be noted that as compared to the EU and the US, the source of raw inputs for the food sector in China is mainly from the hinterland. The results for the garment and manufacturing sectors show that for the latter the tariffs are generally low, while for garment sector the average is similar to the values for the food. About the value for industry for India: even if tariffs on manufactures are not higher than other countries, the OERP is quite high since the level of value added in this sector is probably still low resulting in high effective rate of protection.

Table 5: Output Effective Rate of Protection (OERP) (2004) – All Sectors

	Uganda			Tanzania			South Africa*			Senegal			Nigeria			Ethiopia			Botswana			Average		
	Food	Industry	Wearing	Food	Industry	Wearing	Food	Industry	Wearing	Food	Industry	Wearing	Food	Industry	Wearing	Food	Industry	Wearing	Food	Industry	Wearing	Food	Industry	Wearing
China	3.9	0.2	3.7	4.8	0.4	1.1	2.3	0.3	3.5	3.3	0.5	0.73	-0.1	0.1	0.58	4.1	2.2		0.4	0.0	0.0	2.7	0.5	1.6
Usa	-0.9	0.1	-0.1	-41.1	0.6	-2.2	14.2	0.7	-4.6	-0.4	0.1	0.06	0.0	0.0	0.01	-11.2	0.8	1.4	0.0	0.0	0.0	-5.6	0.3	-0.8
EU_25	0.0	0.0	0.1	14.2	3.7	7.8	33.3	3.9	13.8	0.1	0.0	0.02	0.1	0.0	0.01	0.0	6.3	18.9	0.0	0.0	0.0	6.8	2.0	5.8
India	-12.6	3.2	19.1	36.1	49.1	19.1	-	-	22.3	16.8	15.0	15.18	9.9	10.0	9.94	20.8	18.5	13.3	-2.8	0.0	0.0	11.4	15.9	14.1
Japan	-2.8	0.7	-0.4	-8.8	0.7	-1.7	82.8	-	7.3	1.9	0.6	0.65	-0.3	0.1	0	-0.4	0.1	0.1	0.0	0.0	0.0	10.3	0.4	0.9

Note: *The average OERP is the simple average in the importing country. * In the case of South Africa, it was not possible to find uniform tariffs equivalent to the actual tariffs imposed by India.* **Source:** *Own calculation on GTAP*

6: CONCLUSION

The theory of effective protection should be "the" theory of tariffs (Ruffin, 2008). Developing countries have expressed concerns about tariff escalation, as it impedes the development of their processing industries, particularly with regard to the agriculture and food sectors. The analysis of tariff escalation in the major world markets shows that the EU is the most liberal as far as imports from selected African countries are concerned, while China displays the highest escalation. This is largely due to the EU's preferential schemes such as the "Everything but Arms" initiative and the "Economic Partnership Agreements" it has concluded with a number of countries. However, using an alternative methodology – the OERP index – it was found that – for a smaller sample of African exporting countries - the most liberal was the USA, followed by the EU and China. In other words, EU preferential schemes seems to open European markets more "nominally", i.e. tariff escalation, than "actually", i.e. effective protection. The main policy recommendation from our results on current tariff escalation profiles, as highlighted in the paper, is that all international partners of Africa should get rid of this serious disincentive for African countries to process goods to be exported, both in terms of nominal and effective protection. In particular, phasing out tariff escalation should be a priority vis-à-vis LDCs which worryingly, and despite the international rhetoric on more favourable treatment for them, today seem to face the same escalation as non-LDC countries, and in some cases even worse levels of escalation.

The case of China's tariff structure is especially significant, given the worldwide attention that the intensifying engagement of China in Africa is creating. In traditional donor countries like the EU, lively debates are ongoing on the comparison of respective cooperation approaches and impacts in Africa. It is clear that the partnership between Africa and China, and increasingly that with India, are firmly in the minds of many African governments and businesses, which today tend to see China as the "new friend". According to them the involvement of emerging economies in the continent should provide fresh opportunities for the EU, USA and Japan, the "old friends", to engage Africa on new terms that recognise Africa's aspirations and follow the "Chinese model" of cooperation, perceived as less linked to policy conditionalities and more focused on basic African needs such as infrastructure and capital inflows. However, our results would suggest that the "real friends" in terms of tariff structures, a key component of the trade growth prospects of African countries, are still the "old partners" like the EU rather than the new ones such as China and India. This shows that probably there is value and opportunity in mutual learning, also on trade policy: the emerging economies, while showing the way to OECD countries for more effective investment in Africa, should follow the example of EU and others in providing preferential trade schemes for Africa, such as EBA, which also minimise TE.

The new waves of preferential trade agreements – in particular related to regional integration, North-South FTAs and South-South arrangements - are dominating the negotiating, political and academic fora. Clearly, any new proposal of reduction of duties leads to a reduction of the tariff escalation. However, as this paper has demonstrated, these liberalisation proposals have to be evaluated also in the context of existing preferential agreements. On the one hand, African governments should be wary of nominal improvements in the tariff structures faced by exporters, as EU preferential schemes for Africa do not seem to have led to significant improvements in the degree of processing of African exports. On the other hand, when

African governments do find beneficial an existing preferential scheme, including due to its low TE, they should demand other trading partners to adopt that same approach, at least to provide a positive incentive for exporters to move up the value chain, especially when markets are so crucial for the future, like the Chinese one.

Identifying the real friends is not a clear-cut exercise, but certainly a much needed one. Consequently, developing countries should not be pressurised to quickly negotiate and implement trade reforms, but left sufficient time to analyse in depth new market access proposals, since the devil is in the detail, and the economic impact of changes in the tariff regimes of major trading partners, including the escalation profile, may not be unequivocal.

REFERENCES

Anderson J., Naya S., (1969), *Substitution and Two Concept of Effective Rate of Protection*, The American Economic Review, volume 59, issue 4.

Anderson J., (1998), *Effective Protection Redux,* Journal of International Economics, 44, pp. 21-44.

Antimiani A., Conforti P., Salvatici L., (2003), *The Effective Rate of Protection of European Agrifood Sector*, paper presented at "Agricultural Policy Reform and the WTO: Where are We Heading?", Capri, Italy, 23-26 June 2003.

Bhagwati J. N., Srinivasan T. N., (1973), *The General Equilibrium Theory of Effective Protection and Resource Allocation*, Journal of International Economics, n. 3, pp. 259-282

Bouët A., Decreux Y., Fontagné L., Jean S., Laborde D., (2005), *Tariff Data*, Documentation GTAP Database version 6, draft.

Bureau J.-C., Kalaitzandonakes, N., (1995), *Measuring Effective Protection as a Superlative Index Number,* American Journal of Agricultural Economics, Vol°77, May.

Burman C., Johansson K., Karlsson A., Loxbo H., Norell B., Mattson Y., & Wilhelmsson M., (2001). Tariff Escalation for Agriculture and Fishery Products: Swedish Board of Agriculture

Chevassus-Lozz E. and Gallezot J., (2003), Preferential Agreements – Tariff Escalation: What are the Consequences of the Multilateral Negotiations for the Access of Developing Countries to the European Market? Contributed to paper presented at the International Conference *Agricultural Policy Reform and the WTO: Where are We Heading?*, Capri (Italy), June 23-26, 2003

Davis G. A., (1998), *The Substitution Problem in the Theory of Effective Protection,* Review of International Economics, n.6.

Ethier W., (1971), *General Equilibrium Theory and the Concept of Effective Protection*, in Grubel H., Johnson H., "Effective Tariff Protection", GATT, Geneva, pp. 17-44.

Ethier W., (1977), *The Theory of Effective Protection in General Equilibrium: Effective-rate Analogues of Nominal Rate*, Canadian Journal of Economics, X, n. 2.

FAO, (2003), Tariff Escalation in Agricultural Commodity Markets, Commodities and Trade Division.

Hausmann R., J. Hwang and D. Rodrik, (2007). What You Export Matters. Journal of Economic Growth, vol. 12, 1-25.

Hecht J.E., (1997). Impacts of Tariff Escalation on the Environment: Literature Review and Synthesis. *World Development, vol.* 25(10), pp.1701-1716

Lindland J., (1997). The Impact of the Uruguay Round on Tariff Escalation in Agricultural Products. *Food Policy, vol.* 22(6), pp.487-500

Prebisch R., (1959). Commercial Policy in the Underdeveloped Countries. *American Economic Review* 49, 251–273

Ruffin Roy J., (2008). A Rehabilitation of Effective Protection. *The Journal of International Trade & Economic Development*, 17:3, 333-342.

Stevens J., (1996), *Effective Protection in General Equilibrium: The Case of Korea,* A GTAP technical working paper, Purdue University.

Yeats, A.J., (1984). On the Analysis of Tariff Escalation: Is there a Methodological Bias against the Interest of Developing Countries? *Journal of Development Economics,* vol.15, pp.77-88

WTO, (1996). Tariff Escalation: WTO-Committee on Trade and Environment

Interrogating the Utility of Trade Remedies under the WTO:

A Normative and Procedural Review of the Situation of LDCs and Low Income Countries

By Busingye Kabumba[19][§]Abstract

This paper examines the feasibility of use by Least Developed Countries (LDCs) and Low Income Countries (LICs) of remedies under the dispute settlement system (DSS) of the World Trade Organisation (WTO) and proposes methods of addressing the present situation. LDCs and LICs have comparatively had less resort to the remedies provided under the DSS, primarily because of their cost implications vis-à-vis benefits reasonably to be expected. More critically however, the nugatory nature of the benefit and the potential for adverse effects on the complainant render remedies largely out of reach by LDCs and LICs, which is itself largely a function of the unequal power between members of the WTO. The paper points out the normative and structural bottlenecks to access effective remedial measures by LDCs and LICs under the WTO system but also analyses the internal challenges within these countries that impede their ability to effectively utilise the DSS. Finally it makes an examination of proposals for reform that have been suggested by trade scholars and practitioners, such as the possibility of collective action to obtain compliance and considers how remedies under the DSS can be made more effective and feasible for LDCs and LICs while at the same time ensuring the systemic and normative integrity of the WTO.

1.0   INTRODUCTION

Consult before you legislate; Negotiate before you litigate; Compensate before you retaliate; And comply-at any rate. — European Commissioner for Trade, Pascal Lamy

The United Nations (UN) defines Least Developed Countries (LDCs) as those countries which exhibit the lowest indicators of socio-economic development, with the lowest Human <u>Development In</u>dex ratings of all countries in the world[20]. The World Bank on its part classifies

19   □ LLB (1st Class Hons) (MU), BCL (Oxford), LLM (Harvard); Advocate and Solicitor of the Supreme Court of Uganda.

20   http://www.un.org/special-rep/ohrlls/ldc/ldc%20criteria.htm. (accessed on 1st July 2009) A country is classified as a Least Developed Country if it meets three criteria based on:- low-income (three-year average Gross National Income (GNI) per capita of less than US $750, which must exceed $900 to leave the list); human resource weakness (based on indicators of nutrition, health, education and adult literacy) and economic vulnerability (based on instability of

Low Income Countries (LICs) as those with per capita incomes below $400[21].

This paper examines the feasibility of use by LDCs and LICs of mechanisms under the World Trade Organisation (WTO) for the resolution of disputes in light of the obvious politico-economic difficulties they face. Section 2 of the paper gives a brief overview of the Dispute Settlement System (DSS) established under the WTO, while Section 3 looks at the reasons why the DSS has failed to be effectively utilised by LDCs and LICs. An examination is made in Section 4 of various reform proposals in trade law literature, while Section 5 contains a summation of the analysis and proposes appropriate ways forward.

2.0 Overview of Dispute Resolution Framework under the WTO

A WTO member State which believes that practices by another member State violate the WTO Agreement can request consultations under Article 4 of the Dispute Settlement Understanding[22]. If these consultations do not yield the expected results, such member may request that a WTO panel be established[23].

If a WTO member is found to violate a relevant WTO rule, the Dispute Settlement Body (DSB) recommends that the offending member "bring the measure into conformity" with the covered agreement[24]. The offending state will usually be granted a reasonable period of time within which to comply with the DSB's recommendations and rulings[25].

Where the DSB's recommendations or rulings have not been complied with by the responding member, the aggrieved party may agree on a compensatory package with the responding member or where that is not possible it may seek authorisation from the WTO to retaliate by suspending "concessions or other obligations under the covered agreements" to the responding member[26].

agricultural production, instability of exports of goods and services, economic importance of non-traditional activities, merchandise export concentration, handicap of economic smallness, and the percentage of population displaced by natural disasters). Least Developing Countries as a group were formally classified by the UN in 1971, and now account for 49 countries worldwide, with the majority in Africa.

21 http://www.asabe.org/meetings/08lowincomecountries.htm; http://web.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/0,,contentMDK:20420458~menuPK:64133156~pagePK:64133150~piPK:64133175~theSitePK:239419,00.html (both accessed on 1st July 2009).

22   Understanding on Rules and Procedures Governing the Settlement of Disputes, Marrakesh Agreement Establishing the World Trade Organisation, Annex 2, Legal Instruments–Results of the Uruguay Round, 33 I.L.M. 1226 (1994)

23   Art. 6 DSU

24   Art. 19.1 DSU

25   Art. 21 DSU

26   Art. 22.2 DSU. It should be noted that mutually agreed solutions can occur at any stage during the proceedings. However, these have to be consistent with the WTO Agreement (Art. 3.5) and have to be notified to the WTO Dispute Settlement Body (Art. 3.6).

The level of retaliation is required to be equivalent to the level of nullification or impairment suffered by the complainant[27], and the retaliation usually takes the form of increased duties on selected imports from the defendant country with a total trade value equal to the determined level of nullification[28].

It should be noted at the onset that whereas the DSS is based on the rule of law, the system is anchored on the political economy of the member states[29] and this paper will therefore not only contain an analysis of the legal structures in place but will also delve into the extra-legal circumstances that influence the capacity of LDCs and LICs to effectively utilise the DSS.

3.0 A Skewed System or Imperfect Players? Why the DSS does not Work for LDCs and LICs

A number of studies point to the fact that developing countries in general, and LDCs and LICs in particular, have failed to make adequate use of the DSS[30]. Apart from the fact that these countries have largely not been active players in WTO litigation so far[31], there are indications that even in the few instances where cases have been actually brought by larger developing countries, they have faced difficulty in enforcing countermeasures as contemplated by the DSU. For instance, a 2004 study by Bagwell, Mavroidis and Staiger which analysed WTO cases that led to countermeasures (suspension of concessions) made some striking observations:- (i) that

27   The measurement of "equivalent harm" is not without controversy. See for instance the powerful critique put forward by Holger Spamann in *The Myth of "Rebalancing" Retaliation in WTO Dispute Settlement Practice*, 9 J. INT'L ECON. L. 31 (2006). Chang notes that in practice, the determination of such level has been based on the amount of trade values restricted by an import-restricting measure (the EC hormone case (WT/DS26/ARB; WT/DS48/ARB) and Banana case (WT/DS27/ARB; WT/DS27/ARB/ECU)) or the total amount of subsidy granted by an export-assisting policy (the US FSC case (WT/DS108/ARB) and the Brazil aircraft case (WT/DS46/ARB)). See Pao-Li Chang, *The Politics of WTO Enforcement Mechanism,* available at http://www.mysmu.edu/faculty/plchang/papers/enforce1.pdf (accessed on 1st July 2009) at 10.

28   Chang, *Supra* note 8, at 11.

29   Mike Gifford and Tim Josling, "Trade Litigation in Agriculture: Limiting the Abuse of Trade Remedies", IPC Trade Negotiations Issue Brief, July 2004, available at http://www.agritrade.org/Publications/IBs/tl.pdf (accessed on 1st July 2009) at 1.

30   See for instance, Christina Davis & Sara Bermeo, Who Files? Developing Country Participation in GATT/WTO Adjudication (unpublished manuscript, *available at* www.princeton.edu/~cldavis/files/who_files.pdf); Henrik Horn, Petros C. Mavroidis, & Håkan Nordström, *Is The Use Of The WTO Dispute Settlement System Biased?* (CEPR Discussion Paper Series No. 2340, 2000), *available at* http://ideas.repec.org/p/cpr/ceprdp/2340.html.

31   See Chad P. Bown & Bernard M. Hoekman, *WTO Dispute Settlement and the Missing Developing Country Cases: Engaging the Private Sector*, 8 J. INT'L ECON. L. 861, 862 (2005) and Victor Mosoti, *Africa in the First Decade of WTO Dispute Settlement*, 9 J. INT'L ECON. L. 427 (2006)

there was no single occasion where a developing country imposed countermeasures to induce compliance even when faced with non-implementation; (ii) that developing countries with four exceptions (Brazil, Ecuador, Antigua and Babuda) did not even enter into the process of calculating their damage (which is the first step towards requesting authorisation to impose countermeasures); (iii) that even better placed countries (members of the Organisation for Economic Cooperation and Development (OECD)) when facing a recalcitrant opponent which happened to be a larger market had at times refrained from requesting the authorisation to impose countermeasures; and (iv) that where these better placed countries with large markets were themselves faced with non-implementation they had no difficulty in imposing countermeasures and that in fact, all countermeasures imposed at that point had been by OECD members[32].

Another commentator, Nzelibe (2008), points out that two streams of criticisms have emerged in response to the above state of affairs[33]. One stream argues that by its emphasis on the rebalancing of concessions, the DSS hurts the welfare of the aggrieved state that chooses to retaliate without penalising the protectionist state whose measures are in breach of the agreement in question[34]. The other argues that because developing countries, especially the LDCs and LICs, are at a disadvantage in administering effective retaliation, the entire WTO enforcement regime is biased in favour of developed states[35].

We consider that the first stream has more to do with the WTO as a system, while the second, although couched as a criticism of the system, really relates more to the internal challenges faced by LDCs and LICs, and it is in this vein that we consider the various proposals under these categories.

3.1 A Chink in the System

As Limão and Saggi (2006) have noted[36], the fact that the DSS allows members to raise tariffs in

---

32   Kyle Bagwell, Petros C. Mavroidis, & Robert W. Staiger, The Case for Auctioning Countermeasures in the WTO (Aug. 2004) (unpublished manuscript, *available at* http://www.columbia.edu/~kwb8/auctionation080904.pdf) (accessed on 1st July 2009) at 10.

33   Jide Nzelibe**,** *The Case Against Reforming the WTO's Enforcement Mechanism*, Northwestern University School of Law, Public Policy and Legal Theory Series No.07-12: 320-358, also available at http://www.luc.edu/law/activities/publications/ilrsymposium/2008sym/nzelibe_case_against_wto_paper.pdf at 320.

34   Nuno Limão & Kamal Saggi, *Tariff Retaliation Versus Financial Compensation in the Enforcement of International Trade Agreements* (World Bank Pol'y Res., Working Paper No. 3873, 2006), *available at* http://ideas.repec.org/p/wbk/wbrwps/3873.html cited in Nzelibe, *Supra* note 14, at 320.

35   Gregory Shaffer, How to Make the WTO Dispute Settlement System Work for Developing Countries: Some Proactive Developing Country Strategies (Int'l Ctr. Trade & Sustainable Dev., Response Paper No. 5, 2003), available at www.ictsd.org/dlogue/2003-02-07/Shaffer.pdf cited in Nzelibe, *Supra* note 14, at 320.

36   Limão and Saggi, *Supra* note 15, at 1.

response to trade violations committed by other members is inimical to one of the major goals of the WTO. The argument is that even though retaliation is permitted only as a last resort, the fact that the WTO system even countenances tariff increases beyond the bound rates is a direct contradiction of the ideal of liberalised trade.

More importantly for our purposes however, is the observation that tariff retaliation is often not in the best interests of the aggrieved state and this is more so in the case of LDCs and LICs which are too small to respond effectively to non-compliance by a developed country. The imposition of countermeasures results in the prices of imports originating in the responding member becoming more expensive and out of reach of some consumers or industry. For these states therefore given that their optimal tariffs would typically be zero, any tariff increases would only further reduce their welfare.

3.2 Internal Weaknesses Impeding LDC/LIC access to the DSS

As Nzelibe (2008) notes, critics of the current WTO retaliation regime have largely been unwilling to confront the possibility that domestic political economy factors might be partly responsible for the low level of litigation brought by developing countries[37]. Indeed, it has to be recognised that, quite apart from the normative and structural weakness of the DSS, many LDCs and LICs have certain internal weaknesses that inhibit their effective use of the system, which should be addressed alongside proposals for reform of the DSS. These weaknesses include:- human resource constraints; inadequate finances; insufficient political power; bureaucracy; lack of support from home capitals; lack of financial and informational support from the private sector; language barriers; political will as well as questions of democracy and good governance each of which we examine below[38].

(i) Human Resource Constraints

The effective use of the DSS requires a great deal of human resource capacity -- from economists to trade lawyers and negotiators. They should be able to identify injuries to the national interest, recognise violations and gather the data (both qualitative and quantitave) necessary to make an effective case before a WTO panel or to negotiate a suitable settlement[39]. In most LDCs and LICs, there is a severe lack of capacity in these various areas, with many of these countries' missions staffed by one or two lawyers, if any, who alone carry the huge burden of all DSU matters as well as matters before other WTO committees[40]. Michalopoulos (2001) for instance, found that in the year 2000, 70 per cent of developing country members of the WTO did not

---

37   Nzelibe, *Supra* note 14, at 357.

38   Shaffer generally categorises these as constraints of legal knowledge, financial endowment, and political power, that is to say, *law, money and politics*. See, Gregory Shaffer,The Challenges of WTO Law: Strategies for Developing Country Adaptation, paper presented at *The WTO at 10: The Role of Developing Countries in Negotiations and Dispute Settlement* Cairo, Egypt, Feb. 11-13, 2006, available at http://www.worldtradelaw.net/articles/shafferdc.pdf (accessed 1st July 2009) at 1.

39   *Id.,* at 2.

40   *Id.,* at 5.

have the minimum of four staff based in Geneva that is considered necessary for effective representation in WTO meetings across the different areas of WTO policy[41].

Moreover these countries generally lack the pool of trade professionals normally at the disposal of developed countries and larger developing countries. In Uganda for instance, there are only a handful of lawyers competent on international trade law, many of whom have resorted to practicing purely municipal law given the paucity of instructions related to WTO law. At the same time, no one takes the place they leave behind given that they represent an elite class of specially trained counsel who had the benefit of training either from South Africa (the popular Master of Laws in International Trade and Investment Law offered alternately by the University of Western Cape and the University of Pretoria) or other institutions of learning in Europe and America[42].

Even that manpower which does exist is most times inefficiently allocated, with foreign affairs ministries taking on roles in trade disputes in which they have limited background and diplomatic postings generally filled by non-lawyers[43]. This is further compounded by a situation of insecurity of tenure at WTO missions with frequent changes of personnel, at times due to political and other reasons unconnected with their performance, which is an obstacle to the development of a trained cadre of trade professionals that can adequately protect the interests of their home states.

(ii) Inadequate Finances

LDCs and LICs by their very nature are at a significant disadvantage regarding their financial capacity to utilise the DSS given especially their constrained budgets with accompanying significant debt obligations. Although this circumstance is somewhat mitigated by their access to subsidised legal assistance through the Advisory Centre on WTO Law[44] (funded largely by developed countries), they would still be left to their own devices at the suspension of concessions stage.

(iii) Insufficient Political Power

These countries also face the serious challenge of pressure applied outside the ambit of the DSU. In a system where the line between law and politics is at times blurred, and given the larger politico-economic reality within which the members relate, it is not surprising that LDCs and

---

41   Constantine Michalopoulos, 2001, Developing Countries in the WTO, New York: Palgrave, cited in Davis and Bermeo, *supra* note 11, at 5.

42   International Economic Law is not taught as a distinct unit at the Makerere University Law School, the pre-eminent law school in the country. There are however newer private universities such as Kampala International University, which have begun to offer it as a subject at postgraduate level.

43   Shaffer, *supra* note 19, at 5.

44   See the web site of the Advisory Centre, on WTO Law, Welcome to the Advisory Centre on WTO Law, at http://www.acwl.ch/e/index_e.aspx (accessed on 1st July 2009).

LICs are victims of bullying and coercion. The means used may range from threats to withdraw financial aid and other forms of technical cooperation, whether directly from the developed country in question or from aid that was to be reasonably expected from a multilateral institution over which the country in question has substantial control or influence. The literature on the subject reveals some disturbing indications of the extent to which this coercion may go, insofar as even food aid has not been left out the pressure tools. Shaffer (2006) for instance recounts an interview with a former member of the Office of the United States Trade Representative (USTR) who admitted that the United States had threatened high level officials in the capital of an African country with the withdrawal of food aid were the country's Geneva representatives to pursue a WTO complaint, as well as another incident where an African trade minister reveals that the consequence of his refusal of a US African Growth and Opportunity Act (AGOA) package would be withdrawal of funding to combat the AIDS epidemic.[45]

These are examples of what are no doubt everyday occurrences within the halls of trade missions in Geneva, and which have the effect of demoralising trade representatives from LDCs and LICs and undermining their faith in the integrity and credibility of the DSS.

(iv) Lack of Bureaucratic Coordination

It has also been noted that LDCs and LICs suffer from a lack of bureaucratic coordination that further hampers their effective participation in the DSS. Shaffer (2006) seems to indicate that the requirement for Attorney General's approval prior to filing a claim or third party submission in WTO case, which appears to be the case in many developing countries, constitutes an unnecessary procedural fetter to the bringing of claims by these countries[46]. He cites the experience of a consultant who observed as follows from his experience assisting sub-Saharan African countries:

> In most developing countries, particularly those in Africa, all government litigation has to be authorised or undertaken by the offices of the Attorney General…Without such clearance, no proceedings can commence. Typically therefore there has to be a complex exchange of letters (literally) between the Ministry of Trade (Geneva office sends this to the Minister in Capital who then endorses and sends to), the Attorney General's office, (that then has to liaise with) the Ministry of Foreign Affairs (for consistency with foreign policy)…. The result is that there is extreme delay in delivering instructions to Geneva to proceed, which often is after the deadline[47]".

However, these may be harmless and even useful procedural requirements as long as the officials involved in obtaining the required approvals execute their duties in a timely and responsive manner.

An alternative may be creating a permanent office with the mandate to authorise litigation and handle all other related WTO and DSS matters as has been done in the US (Office of the

---

45   Shaffer, *supra* note 19, at 16.

46   *Id.,* at 5.

47   E-mail cited in Shaffer, *supra* note 19, at 5.

United States Trade Representative) and the EU (European Commissioner for Trade). While a number of LDCs and LICs do have Ministers for Trade, the experience above may be reflective of the fact that a permanent understanding has to be reached between the Ministries of Trade and Foreign Affairs regarding capacity in WTO matters so as to harmonise trade policy and ease the work of the countries' Geneva missions as well as those assisting them, such as the WTO Advisory Centre.

(v) Lack of Support from National Capitals

Shaffer (2006) notes that LDC and LIC missions in Geneva usually suffer from lack of informational and institutional support from their national capitals, a circumstance that not only discourages the individuals deployed at the missions (thus reducing their incentive to participate in the dispute settlement system) but also limits their capacity in practical terms to be effective delegates for their home countries given that with the increasing complexity of WTO rules and of the WTO institutional structure, a single developing country delegate cannot possibly follow all WTO developments. For instance, it is difficult to see how one or two delegates can cope with the over seventy different WTO councils, committees, working parties, and other groupings, involving over 2,800 meetings each year or an average of 9 meetings per working day. As a result, LDC and LIC countries' representatives may simply skip certain meetings, including at times those scheduled for their express benefit[48].

Although on one view of the matter these problems are related to the financial constraints that beset LDCs and LICs, creative ways can be found by these countries to offer support to their missions abroad without expending a great deal of resources. One way might be to share resources and information among themselves, including if necessary, office space. The savings thereby could then be channeled to increasing staff and improving the welfare of delegates in Geneva.

(vi) Lack of Financial and Informational Support from the Private Sector

Scholars and practitioners have also noted that the private sector in developing countries has typically viewed WTO dispute settlement as the government's job and refrained from taking proactive steps to identifying harmful trade practices and supporting the government in the preparatory work necessary to vindicate these claims in the DSS. This circumstance poses especially serious problems for governments in developing countries, and more especially LDCs and LICs, who have more limited public resources as compared to developed countries which have sophisticated mechanisms for partnering with the private sector in utilising the DSS[49].

(vii) Language Barriers

Although English, French and Spanish are the three official languages of the WTO, English is the dominant language meaning that non-English speaking LDC and LIC officials are at a marked disadvantage in protecting the interests of their countries. The challenges posed by language barriers are summed up neatly in the following account:

---

48   Shaffer, *supra* note 19, at 4.

49   See generally, Bown and Hoekman, *supra* note 12.

> … it is tiring and time consuming to wait for the translation in panel audiences. But also and perhaps more relevant, is that translation of documents may take 10 days and so it happens that panelists arrive to audiences without having had time to read them. This may be a disadvantage vis-à-vis documents submitted by the other part. Panelists have no clue of what our arguments are while they know the others', and this is a great disadvantage[50]".

There is however another aspect of the problem. Apart from the obstacle that language places on effective participation in the WTO in general and the DSS in particular, the wealth of important WTO scholarship is only available in the English language, which puts non-English speaking countries at a huge disadvantage[51].

While it is arguable that the language problem is one that cuts across the WTO membership, it is especially acute for LDCs and LICs given the limited human resources at their disposal. Thus, while a typical LDC or LIC might maintain two representatives at its mission in Geneva[52], a smaller developed country could have a staff of at least thirty[53] with the accompanying circumstance that the probability of a developed country (whatever its national language) having a couple of fluent English speakers on its staff would be manifestly higher than an LDC/LIC.

(viii) Political Will

Yet another purely internal challenge faced by LDCs and LICs is the low premium a lot of them have placed on international trade matters. From inadequate budgetary allocations to support missions in Geneva (and WTO-related desks at home) to the low level positions assigned to trade ambassadors, it appears that trade matters play second fiddle to matters such as defense and other sectors of domestic concern. Additionally, LDCs and LICs will ordinarily have a single diplomatic mission for handling matters before the WTO and the UN in Geneva, a situation made worse by the lack of continuity given the frequent replacement of these officials just as they are getting versed with WTO matters[54].

---

50   Interview cited in Tussie and Delich, "The Political Economy of Dispute Settlement: A Case from Argentina," at 10-11, cited Shaffer, *supra* note 19, at 6.

51   See for instance a 2001 speech by WTO Director General Mike Moore acknowledging that Arab members of the WTO face an undeniable language barrier in the day to day work of the Organization, which is compounded by the dearth of Arab authors and Arabic language publications, on WTO, at http://www.wto.org/english/news_e/spmm_e/spmm65_e.htm (accessed on 1st July 2009).

52   See for instance http://www.tanzania-mission.ch/index.php?option=com_content&task=view&id=7&Itemid=9 (accessed on 1st July 2009). The Tanzanian mission, which serves that country's interests both in the UN and the WTO, has a total staff of seven of whom two are exclusively dedicated to WTO matters.

53   For instance the Permanent Mission of Sweden to the WTO has a staff of 30. See http://www.swedenabroad.com/Page____9920.aspx (accessed on 1st July 2009).

54   Shaffer, *supra* note 19, at 3.

(ix)   Democracy and Good Governance

As Davis and Bermeo (2008) have noted, democratic institutions encourage the government to represent domestic interests and may favour particular forms of dispute settlement such as adjudication[55]. Nzelibe (2008) similarly recognises that trade barriers might have a more significant influence on politicians in mature democratic states because electorally accountable officials are likely to be more responsive to interest group pressures than officials in nondemocratic countries, and that since many LDCs have weak or nonexistent democratic institutions, the lack of WTO litigation brought by some countries might simply reflect the reality that political officials in those countries face less societal demands to bring such claims[56].

The link between good governance and effective DSS participation becomes even clearer when we take account of the broader effect of poor resource allocation and failings in prioritisation that plague many LDCs and LICs. Taken to the extreme, we may even note that fragile states such as Sierra Leone and the Democratic Republic of Congo may have little time to address themselves to identifying violations and taking steps to redress them under the DSS. [the countries mentioned are not WTO members].

4.0   Proposals for Reform

It is evident that the DSS has not worked for most developing countries, particularly LDCs and LICs and that a lot needs to change, both in the system and within some of the players, if equity in trade is to be achieved while preserving the integrity of the WTO. We discuss in this section the proposals that have been put forward to address these shortcomings.

4.1   Reforming the DSS

Some major proposals have emerged from scholars and practitioners as well as users of the system regarding reform of the DSS. These include: having a system of monetary compensation; permitting collective retaliation as well as instituting a system of prosecution of offenders administered by the WTO itself. These alternative remedial schemes seek to level the enforcement playing field between developed and developing countries (and LDCs and LICs in particular), enhance the WTO enforcement mechanism and increase the likelihood that offending states fully internalise the costs of their violations[57].

It is noteworthy that these are not new proposals. For instance Brazil had as far back as 1965 (during the Kennedy Round) proposed a reform of the General Agreement on Tariffs and Trade (GATT) to allow for both financial compensation and collective retaliatory action in order to obtain compliance[58]. In this regard therefore, they are not as radical or path-breaking

55   Davis and Bermeo, *supra* note 11, at 19.

56   Nzelibe, *supra* note 14, at 357.

57   *Id.,* at 321.

58   Gupta K.R., GATT and Underdeveloped Countries, Atma, Ram & Sons, 1976, at Pg. 273, cited in Clare Olaki, The Feasibility of Retaliation as a Trade Remedy under the WTO Dispute Settlement Understanding, Unpublished LLM Dissertation submitted to the University of the Western Cape, available at http://etd.uwc.ac.za/usrfiles/modules/etd/docs/

as they at first appear. We consider these different proposals in turn.

(i)   Monetary Compensation

This proposal has been formally put forward by some developing countries as well as by commentators[59]. The proposal basically is that instead of allowing aggrieved parties to suspend concessions or other obligations as is currently the case, the responding member be mandated to make good the violation in the form of a monetary package as is the case in ordinary commercial disputes and other interstate dispute resolution mechanisms.

Critics of this proposal argue that while monetary damages may impose some political costs on the regime in the responding member, the regime would have every incentive to disperse the impact of such a sanction by spreading the burden across a diffuse and politically weak domestic constituency. Furthermore, that the regime in the complaining member may have no incentive to use monetary damages to benefit the domestic groups affected by the trade inconsistent measure, a concern is likely to be exacerbated in LDCs where regimes are typically subject to high agency costs[60].

It is further argued that monetary remedies might in fact lead to inefficient or excessive levels of litigation as it is likely to increase the divergence between the social and private costs of WTO litigation, that is to say, that monetary compensation may enable developing countries to derive benefits from initiating WTO litigation that, while significant from the developing countries' viewpoint, may be detrimental to the WTO system as a whole. Those who press this point argue that such divergence is less likely when a state engages in bilateral retaliation because the benefits from litigation (which involve the opportunity to administer prospective sanctions against the offending state) are not significant relative to the costs of litigating a claim[61].

In addition, it is pointed out that implementation of financial compensation faces the important hurdle of compliance given that the fine imposed would have to be paid by the responding member. Limão and Saggi (2006) note that while an injured country can implement retaliatory tariffs without requiring any cooperation from a violating country this is not the case for fines since, ultimately, a violating country has to agree to pay the fine and will only do so when it is in its best interest especially given that there exists no supra-national authority with the

etd_gen8Srv25Nme4_4384_1213863780.pdfat 31. (accessed 1st July 2009)

59   Nzelibe (2008) cites Negotiations on the Dispute Settlement Understanding, Proposal by the LDC Group, TN/DS/W/17 (Oct. 9, 2002) (proposing monetary damages equal to injury suffered) and Negotiations on the Dispute Settlement Understanding, Proposal by the African Group, TN/DS/W/15 (Sept. 25, 2002) (proposing monetary compensation to be continually paid pending and until the withdrawal of the measures in breach of WTO obligations) as well as ors have also made similar proposals. He also quotes, among others, Claude Barfield, WTO Dispute Settlement System in Need of Change, 37 Intereconomics 131 (2002).See Nzelibe, *supra* note 14, at 321.

60   Nzelibe, *supra* note 14, at 322.

61   *Id.*

power to enforce the payment of the fine. In support of the above proposition, the authors noted that the problem of enforcement is actually reflected in the current DSU which allows for compensation (under Article 22.2) but refrains from specifying the form it must take[62]. However, they do acknowledge that the same enforcement problem exists in the current system given that smaller countries have problems enforcing tariff retaliation:

> The equivalence of fines and tariff retaliation in terms of enforcement suggests that both mechanisms yield the same payoffs. However…this is only true if there are no deviations from cooperation in equilibrium. When such deviations occur, and they clearly do in practice, we show that fines supported by tariffs have an advantage over tariff retaliation as a primary remedy. Namely, the payoff to an injured country is higher under fines even though the cost of the penalty for a violating country is unchanged. Thus we show that switching to fines generates a Pareto improvement in the presence of shocks that result in disputes along the equilibrium path. The underlying motive for this result is that tariffs are an inefficient form of compensation because the welfare gain they generate for an injured country (if it has market power) is always less than the welfare cost imposed on the country that committed the original violation[63].

Limão and Saggi (2006) go on to propose a third alternative, namely that international cooperation can be obtained and sustained by a system where each country posts a bond of a given amount prior to trading, with the understanding that this bond will be used to pay a fine in case it commits a trade violation. They argue that bonds will only improve enforcement if they are held by a third party given that if the bonds are simply exchanged by two countries, the offending state would have no incentive to return the other country's bond and ultimately the threat of retaliation would be required once again. If the bonds were, however, deposited in an escrow fund, tariff retaliation would no longer be necessary as the posted bond could be used to compensate the injured party. This solution would help solve the collection action problem by small countries and enable them to obtain tariff concessions from large countries[64]. This is definitely an innovative solution that demands serious consideration by all players involved in the DSS given its potential for solving the recurrent problem of enforcement of WTO obligations in the absence of a supranational enforcement body.

(ii) Collective Retaliation

This proposal was formally put forward by Mexico in 2002 which argued that developing countries should be allowed to trade their retaliation rights.[65] Under this proposal aggrieved countries who are not in position to enforce compliance by the offending state would be given

---

62   Limão and Saggi, *supra* note 15, at 3-4.

63   *Id.,* at 4-5.

64   *Id.,* at 5 (noting that such an escrow scheme was in fact proposed by Chile in its bilateral trade agreement with the US).

65   See Negotiations on Improvements and Clarifications of the Dispute Settlement Understanding, Proposal by Mexico, TN/DS/W/23 (Nov. 4, 2002), cited in Nzelibe, *supra* note 14, at 321.

the right to trade in, for money or other benefits, the right to retaliate to a third state who would then be allowed to suspend its concessions or other obligations as regards the offending state, the rationale being that such an arrangement would help assist LDCs and LICs access effective retaliation under the DSS. As Mexico put it:

> The suspension of concessions phase poses a practical problem for the Member seeking to apply such suspension. That Member may not be able to find a trade sector or agreement in respect of which the suspension of concessions would bring about compliance without affecting its own interests...There may be other Members, however, with the capacity to effectively suspend concessions to the infringing Member[66].

Mexico argued that two potential benefits would be realised from making the right to impose countermeasures tradable under the DSS: (i) greater incentive for compliance in as far as the infringing Member, faced with a more realistic possibility of being the subject of suspended concessions, would be more inclined to bring its measure into conformity[67] and (ii) better readjustment of concessions given that the affected Member would be able to obtain a tangible benefit in exchange for its right to suspend[68].

A variation on the Mexican proposal, suggested by Bagwell, Mavroidis and Staiger (2004), would allow the aggrieved party to auction off its retaliatory right to the highest bidder, including in some scenarios, the offending state itself[69]. The argument here is that having a transferable retaliatory right would have beneficial effects and boost the rate of implementation of WTO decisions[70]. The Bagwell, Mavroidis and Staiger study (2004) posits that auctioning countermeasures in the WTO can lead to both better incentives for compliance and better readjustment of concessions, if the incentive for compliance is gauged on the basis of the cost inflicted on the infringing government (more is better), and if the readjustment of concessions is gauged on the basis of the expected revenue generated by the government running the auction (more is better)[71]. The study goes on to indicate a third potential benefit of auctioning countermeasures in the WTO, namely that the existing right of retaliation may be more efficiently allocated to the WTO Member who values this right most highly[72].

Critics of this proposal however argue that a collective retaliation scheme may not ultimately prove to be welfare enhancing given other politico-economic factors at play. Nzelibe (2008) for instance argues that elected officials in the countries administering the retaliation are likely to be more responsive to the needs of their own domestic political constituencies rather than the interests of the state hurt by the trade-inconsistent measure, that is to say, that it cannot be assumed, that third parties not directly affected by a trade violation will have any incentive

---

66   (WTO, 2002, p. 5), cited in Bagwell, Mavroidis and Staiger, *supra* note 13, at 10.
67   (WTO, 2002, p. 6) cited in Bagwell, Mavroidis and Staiger *supra* note 13, at 11.
68   *Id.*
69   Bagwell, Mavroidis and Staiger *supra* note 13, at 10-22.
70   *Id.,* at 11.
71   *Id.*
72   *Id.*

to impose retaliation in a manner that will induce compliance by the offending state. On the contrary, he argues, such third parties would more likely apply retaliation in a manner that maximises benefits to their protectionist audiences, an approach that is likely to raise the global level of protectionist policies without any offsetting compliance benefits. The argument is that while under the current bilateral retaliation scheme, the aggrieved state has an incentive to choose a retaliation strategy that maximises compliance because of export group pressures, such pressures do not exist when a third party is imposing the sanction. Put another way, that at the very least, in the current enforcement scheme, the interests of the relevant powerful interest group are largely aligned with those of the consumers who stand to benefit from the reduction of trade barriers[73].

(iii)   An Independent Special Prosecutor?

Another interesting alternative, suggested by Hoekman and Mavroidis (2000), is that the WTO secretariat or an independent organisation act as a public prosecutor, tasked with identifying potential WTO violations on behalf of developing countries and LDCs and LICs in particular, as a way of addressing both the resource constraints and the incentive problems that may impede developing country governments from pursuing cases[74].

Shaffer (2006) takes the proposal further, and advocates for an expanded role for such prosecutor to include not only identifying claims but also prosecuting them, in much the same role that the European Commission assumes before the European Court of Justice within the European Union's legal system[75].

While it is arguable that this alternative is not politically feasible at present, given the challenges to WTO legitimacy and due to the fact that it would likely not garner the support of the most powerful WTO members[76], it is worth seriously considering such a proposal especially given the need to safeguard the systemic legitimacy of the WTO and to ensure that it works for all, not some, of its members.

(iv) Other Proposals

Along with the above major proposals can be added suggestions such as a modification of the DSS to provide for attorney fee cash awards, which would create an incentive for private law firms to bring cases on behalf of LDCs or LICs on a no-win no-fee basis, as is done in some domestic contexts. Others include simplifying WTO procedures so as to reduce the costs of LDC and LIC participation. Some mechanisms exist under the current system, but are not deployed. Thus, while there exist Articles 5 and 25 of the DSU on mediation and arbitration (subject to the parties' agreement) as well as the accelerated procedures for developing country complaints against developed countries,[77] these procedures only reduce the time for panel decisions in a

73   Nzelibe, *supra* note 14, at 321-322.

74   See Bernard Hoekman and Petros C. Mavroidis, *WTO Dispute Settlement, Transparency and Surveillance,* The World Economy, (2000) Blackwell Publishing, Vol. 23 (04), at pp.527-542

75   Shaffer, *supra* note 19, at 10.

76   *Id.*

77   See Decision of 5 April 1966 (BISD 14S/18), cited in Shaffer, *supra* note 19, at 10.

situation where developing countries already have difficulty meeting time constraints[78].

1.2   *Reforms that LDCs and LICs need to Undertake to Address their Internal Challenges*

It has been noted that whether LDCs and LICs are able to benefit from the current DSS (or any future modified version thereof) will depend on their level of preparation[79]. There are thus certain steps that these countries can and should immediately start to put in place to enhance their capacity to effectively utilise the DSS.

(i) Greater Public-Private Coordination

LDCs and LICs should aim at fostering greater public-private engagement which is vital in identifying injuries to the national interest, as well as in fact gathering, both of which are a crucial part of trade litigation as well as any negotiations in the shadow of the DSS[80]. Also, as Davis and Bermeo (2008) point out, where the interest at stake is sufficiently large, the affected domestic industry even in LDCs and LICs may be willing and able to sustain the costs of WTO litigation, which range anywhere between $300,000 and $1,000,000[81]. However, given that the interests of these industries and those of the government may not always be in tandem, there is a continuing need for governments to ensure that these private resources are used in a way that maximises the national interest[82].

(ii) Controlling Bureaucracy and Increasing Inter-Agency Cooperation

LDCs and LICs should better coordinate their internal bureaucratic workings in order to more effectively utilise the DSS. They would be well advised either to create specialised trade bureaucracies or specialised dispute settlement units within their foreign ministries as a way of building their human resource capacity and lessening the red tape that hampers their use of the DSS. There should also be proper use of the available manpower – lawyers should occupy positions calling for legal expertise, economists should be suitably deployed in the relevant trade bureaucracy and other key experts likewise appropriately employed. As far as possible, interdisciplinary approaches to training should be prioritised given the ever growing complexity of trade issues that call for a wide knowledge pool.

(iii) Making Better Use of Development Agencies

Shaffer (2006) notes that both LDCs and LICs have not made effective use of opportunities presented by development agencies and foundations that may assist them in exercising their DSS rights, such as the training programmes in WTO dispute settlement offered by the WTO, the United Nations Conference on Trade and Development (UNCTAD), as well as the WTO Advisory Centre[83]. LDCs and LICs could also seek assistance from these institutions to help them identify trade barriers, and in gathering facts relating to domestic industry harm that

---

78   Shaffer, *supra* note 19, at 10.
79   Nzelibe, *supra* note 14, at 357.
80   Shaffer, *supra* note 19, at 8.
81   Davis and Bermeo (2008), *supra* note 11, at 15.
82   Shaffer, *supra* note 19, at 9.
83   *Id.,* at 7.

are of crucial importance in WTO litigation and negotiated settlements. For their part, these institutions could develop software systems similar to the UNCTAD and World Bank developed SMART (Software for Market Analysis and Restrictions on Trade)-- a software tool aimed at assisting LDCs and LICs during the Uruguay Round negotiations, for the purpose of WTO monitoring and enforcement[84].

LDCS and LICs should make full use of the range of opportunities at their disposal for developing not only capacities in particular sectors or during specific disputes, but should rather aim at building internal institutional and human resource capacity that they can use going forward.

(iv) Pooling Resources to Effectively Utilise Scarce Human Resource and Other Resources

Drahos (2006) suggests that developing countries should pool their resources together through regional centres to assist the individual countries in identifying trade barriers and providing legal support in DSS matters[85]. There are already indications of moves towards such arrangements, with the establishment of a trade law centre in Southern Africa (tralac)[86] and indications that another one may be created in Egypt[87].

The tralac experience shows that this can be a powerful means of creating effective participation by LDCs and LICs in the DSS. The centre "monitors trade negotiations, interprets agreements, contributes to debates and stimulates discussions on international law matters, researches developments in international trade law, prepares and disseminates a weekly electronic newsletter (*Trade Briefs*), Working Papers, news articles, contributes to discussions in media, collects and makes available Trade Agreements and related legislation, develops and delivers capacity building programmes[88]". While the centre could be more effective if its mandate were broadened to include bringing claims on behalf of client states, the concept of regional centres remains a sound one which should be emulated by other LDCs and LICs, such as the countries in Eastern and West Africa.

The need for pooling resources is especially great given the challenges of human resource faced by these countries. As Mosoti (2003) notes in the context of African participation in the DSS:

---

84   *Id.,* at 8.

85   Peter Drahos, "When the Weak Bargain with the Strong: Negotiations in the World Trade Organization," 8 *International Negotiation* 79-109 (2003), cited in Shaffer, *supra* note 19, at 14.

86   Tralac is expressed to be a not-for-profit organization, building trade law capacity in the southern Africa region; in governments, the private sector and civil society, See Tralac home page at http://www.tralac.org/cgi-bin/giga.cgi?c=1694 (accessed on 1st July 2009)

87   Victor Mosoti, *Does Africa Need the WTO Dispute Settlement System?,* (ICTSD, Geneva) 1-28 (2003) available at http://www.ictsd.org/dlogue/2003-02-07/Mosoti.pdf, at 20 (accessed on 1st July 2009)

88   Tralac home page at http://www.tralac.org/cgi-bin/giga.cgi?c=1694 (accessed on 1st July 2009)

AID FOR TRADE AND FUNDING MECHANISMS UNDER ECONOMIC PARTNERSHIP AGREEMENTS:

CHALLENGES AND POLICY OPTIONS FOR IMPLEMENTING THE PROPOSED DEVELOPMENT MATRIX UNDER THE EAST AFRICAN COMMUNITY/ EUROPEAN UNION AGREEMENT

By Edgar Odari[1]

1.0   Introduction

The conduct of trade requires economic infrastructure and tools to facilitate the doing of business efficiently. Poor infrastructure and lack of technical trade-related skills have it difficult for developing countries to properly integrate into the global economy. In an attempt to address this challenge, Aid for Trade (AfT) is the response mechanism that has been designed to expand the trade capacity of developing economies through the development of technical trade-related skills as well as infrastructure so as to enhance their trade competitiveness. AfT has become an important component of the discourse of international trade and development as it portends an opportunity for developing countries to pursue development through trade.

The East African Community (EAC) has been carrying out trade negotiations under the proposed Economic Partnership Agreement (EPA) with the European Union (EU). One of the fundamental issues that have become contentious relates to funding mechanisms to address the EAC's adjustment costs in the EPA as well as enhance its competitiveness by addressing the supply-side constrains that impair trade between the region and the EU. The negotiations have been fraught with disagreements over the nature and extent of obligations that each party should commit with the EU being accused of imposing a compliance burden on the EAC without offering adequate funding to facilitate such compliance and enable the EAC to benefit from the established trade framework.

One of the contentious issues under negotiation relates to the chapter on economic and development cooperation where proposals have been developed for a comprehensive infrastructural and non-infrastructural development programme to address constrains identified as being impediments to industrial and agricultural competitiveness in the EAC. The point of divergence relates to the EU's reluctance to make binding financial commitments to fund the development aspects in the EPA negotiations. While the EAC has insisted that the development text and its accompanying matrix must be included in the EPA, the EU insists that the internal regulations regarding development assistance only contemplate the EU's instruments of development support as being those reflected within the framework of the European Development Fund (EDF), the EU budget as well as through standalone bilateral cooperation with the EU Member States.

It is therefore the aim of this paper to examine the draft development text for the EAC/EU EPA, the development matrix and the various proposals and positions developed by both parties. The proposals will be evaluated against key AfT pillars identified under the World Trade Organisation (WTO). The EPA funding mechanism will also be evaluated as to the extent by which it addresses the development priorities, fiscal losses and adjustment cost implications of the EAC. It will also examine the policy options for the EAC in benefitting from a comprehensive EPA. The first section provides

1   LLB, (Moi); Legal Associate, TRIDE BAC Consulting, A Trade Law Consultancy.

a background to the EPA negotiations between the EAC and the EU. The second part examines the aspect of development cooperation and the financing mechanisms contemplated under the EPA. The third section of this paper analyses the EAC/EC development cooperation text and the accompanying matrix. Here, the challenges in financing the EPA are identified. A comparative appreciation of other EPA financing mechanisms is tackled in the fifth chapter. The sixth chapter is dedicated to conclusions and recommendations.

2.0   Background to the Negotiation of Economic Partnership Agreements

The negotiation of EPAs between the EU and African, Caribbean and Pacific (ACP) countries marked a significant paradigm shift in ACP/EU relations. This marked a departure from the previous Lomé Convention IV framework; a 25-year trade and aid support framework which expired on February 29, 2000. The Lomé framework provided preferential trade status to ACP countries along with development aid. Towards the expiry of Lomé IV, a paradigm shift emerged informed by various factors including a challenge to the ACP/EU trade relationship at the WTO in the famous EC Bananas Cases[1] as well as the EU Green Paper which bemoaned the failure of the Lomé Conventions to address poverty and enable ACP countries to take advantage of the opportunities offered by the special preferences under the framework.[2]

These factors eventually led to the signing of the Cotonou Partnership Agreement (CPA) on June 23, 2000 to succeed the Lomé IV framework for 20 years. The chapter on trade under the CPA allowed for trade negotiations until 2007 when it was expected that comprehensive agreements would have been developed to succeed the Lomé Conventions and ensure compliance with WTO principles as well as a framework that sought to develop the trade capacity of ACP countries. A WTO waiver was obtained to facilitate trade in the interim period which was to expire on December 31, 2007. This was the framework for the conclusion of EPAs.

The CPA was a shift from a Lomé mandate that only sought to promote trade between the ACP states and the EU[3] by establishing mechanisms to "*improve the conditions of access of [ACP] products to the market*" to one that was aimed at fostering the smooth and gradual integration of ACP states into the world economy and thereby promoting their sustainable development and contributing to poverty eradication in the ACP states.[4] Under articles 34(2) and 34(3), it was stated that the broader objective of cooperation was to "*enhance the production supply and trading capacity of the ACP countries as well as their capacity to attract investment by creating new trade dynamics between the parties with a view to facilitate their transition to the liberalised economy.*"

The negotiation of EPAs was structured in three main phases beginning with the first phase (2002-2003) where the negotiations were launched at the entire ACP level and discussions with the EU through the European Commission (EC) that were centred on general issues and principles of the EPAs as well as issues of common interest to all ACP countries. The second phase (2003-2007) involved substantive negotiations at regional levels while the third phase (July 2009) was expected to entail the finalisation of negotiations. The EPA negotiations were to be undertaken in six groups based on geographical configuration including: Eastern and Southern Africa (ESA), Southern African Development Community (SADC), Economic Community of West African States (ECOWAS), Central African Monetary Union (CEMAC), the Caribbean Community (CARICOM) as well as adjacent countries and the Pacific group of countries. This is the structure upon which the negotiations have been carried out although there have been some variations and changes in the negotiating blocs.

2.1   Negotiations under the EAC/EC Economic Partnership Agreement

The EAC did not commence negotiating EPAs as a bloc. At the beginning, four EAC countries (Burundi, Kenya, Rwanda and Uganda) were negotiating under the ESA configuration.[5] Tanzania, on the other hand, was negotiating under the SADC configuration since it belongs to that Regional Economic Community (REC). Such a disjointed negotiating framework posed a challenge of policy disarticulation given that the EAC partner States were implementing the Customs Union Protocol through the binding obligations as contained in the EAC Customs Management Act. To address the foregoing concern, the EAC ministers of Trade on October 13, 2007 directed the partner States to harmonise their positions on the EPA and submit a harmonised market access offer to the EC, the body tasked with the mandate to negotiate trade agreements on behalf of the EU. It was emphasised that a strong collaboration between the EAC and the other RECs be maintained to ensure that the positions advanced by the EAC were in tandem with the COMESA and SADC regional integration processes. A framework EPA has since been signed to that effect.

2.1.1   The EAC/EC Framework Economic Partnership Agreement (FEPA)

The EAC/EC FEPA was initialled on November 27, 2007 pursuant to the commitment made between the ACP and EU on the conclusion of an EPA by December 2007. The FEPA is to be replaced by a comprehensive agreement after negotiations have been concluded. It was expected that the process would be concluded by July 1, 2009 but contentious issues still remain unresolved.[6] The FEPA contains chapters on trade in goods, fisheries as well as the development clause. The pending chapters are included in the "rendez-vous clause" in the agreement. It is important to briefly examine the chapters of the framework agreement.

2.1.1.1 Trade in Goods

With regard to the chapter on Trade in Goods, the EAC and the EC have both made offers to each other with a total of about 5,429 tariff lines being opened.

a)   The EC Offer on Goods

In the case of Trade in Goods, the EC has offered the EAC partner States Duty-Free-Quota- Free (DFQF) market access for all products. An exception is made in the case of rice and sugar which will undergo a gradual tariff reduction. The tariff dismantling was structured such that rice was slated to be fully liberalised by January 1, 2010 while sugar was to extend to September 30, 2015. The offer also includes an automatic derogation that sets an annual quota of 2000 tonnes for tuna loins[7]; and until EC customs duties are entirely eliminated, and in addition to the allocations of tariff rate quotas at zero duty as set out in the Sugar Protocol, the EC set a tariff rate quota of 15,000 opened for the marketing year 2008/09 for products under sub-heading 1701 11 10, white sugar equivalent, originating in the EAC partner States.[8]

b)   The EAC Offer on Goods

On its part, the EAC has made a Market Access offer to the EC that entails the liberalisation of trade as well as a number of exceptions as stated below:
  - The liberalisation of trade in goods to the extent of 80 per cent of the EAC market for EU

imports over a 15 year period. This category of products includes raw materials and capital goods (65.4 per cent) that already enjoy duty free status and large intermediate products (14.6 per cent) which attract a 10 per cent import duty. The tariff phase down for intermediate products is slated to begin in 2015 and end in 2033. The products under this category are considered as being important in promoting competitiveness in agricultural and industrial sectors.

- An exclusion of sensitive products that account for about 17.4 per cent of total trade with the EC and account for 25 per cent of the total tariff lines. Tariffs applicable to this category of products are the same as for third countries. These products are included in an elaborate list of sensitive products containing 1390 tariff lines.[9]
- An additional liberalisation of 2 per cent of the EAC market for imports from the EU within a 25 year period in the case of final products. The schedule for tariff phase down for these products is set to commence in 2020 and end in 2033.
- A two year moratorium between January 2008 and December 2009 to allow Burundi and Rwanda to complete the process of implementing the provisions of the EAC Customs Union.

Table 1: A Summary of the EAC Offer under the Framework EPA

YEAR	Value Liberalised (USD)	% of Trade Liberalised (USD	Excluded Value (USD)	EAC Exclusion	EC Liberalisation	SAT	No. of Tariff Lines
2010	1,615,331,216	65.4 %	428,818,834	**17.4%**	100%	83%	1,950
Within 15 years	361,011,102	14.6%				90%	1,129
2033	64,864,376	2.6%				91%	960
Exclusion							1,390
Total trade liberalised by EAC	2,041,206,694	**82.6%**					
Total EAC Imports from EU	**2,470,025,527**						
					TOTAL TARIFF LINES		**5,429**

Source: EAC, 2009

c) **The Fisheries Agreement**

The Framework EPA also includes a chapter on fisheries that covers marine and inland fisheries as well as aquaculture development. The objectives of cooperation under this chapter include the promotion of sustainable development and management of fisheries; development of regional and international trade based on best practices; creation of an enabling environment, including infrastructure and capacity building, for the EAC countries to cope with the stringent market requirements for both industrial and small scale fisheries; supporting national and regional policies that are aimed at increasing productivity and competitiveness in the fisheries sector; as well as building links with other economic sectors.

d) **The Development Text**

The Framework EPA text also contains a clause for economic and development cooperation. Under this chapter, the parties reaffirm their commitment to ensuring that the EPA is a tool for development which will promote and consolidate regional integration and aid the EAC's integration into the global economy. The EC under Article 36 of the FEPA makes commitments to the effect that it will contribute towards the resources required under the 10th EDF Regional Indicative Programme, Aid for Trade and the EU budget. This chapter forms one of the areas where contention still exists as to how the EPA ought to be funded and the structures and modalities within which that is to be done. The EAC has gone ahead and developed a text on development complete with an accompanying matrix. These shall form the crux of the discussion in this paper.

e) Areas of Future Negotiations

Under Article 37 of the Framework EPA, the text sets out areas of future negotiations under the '*rendezvous*' clause. The clause seeks to build on the Cotonou Agreement and sets out areas of negotiations towards a full EPA to include the following:

a) Customs and trade facilitation;
b) Outstanding trade and market access issues;
c) Technical barriers to trade and sanitary and phytosanitary measures;
d) Trade in services;
e) Trade related issues namely:
    i. Competition policy;
    ii. Investment and private sector development;
    iii. Trade, environment and sustainable development;
    iv. Intellectual property rights;
    v. Transparency in public procurement;
f) Agriculture;
g) Current payments and capital payments; and
h) Any other areas that the parties find necessary.

The text also contains a chapter on dispute avoidance and settlement as well as institutional and final provisions. This part sets out various rules on consultations, dispute settlement, general exceptions, security exceptions, taxation, entry into force, territorial application and also sets up various institutions including the EPA Council and the Special Committee on Customs Cooperation.

2.1.1.1 Economic and Social Impact of the EAC/EC EPA

The EPA is expected to result to significant economic and social impact on the EAC which will require concrete and targeted intervention to ensure optimal benefit for the EAC. The EAC/EC EPA is expected to result to significant impact on the economic conditions of the EAC. Some of the likely impact on the EAC could include the growth or decline of manufacturing industries; particularly in the case of agro-processing and textile industries, reduced revenues owing to trade creation or diversion and other welfare implications. Key social issues that could possibly result from such liberalisation include issues relating to employment and poverty incidents; the economic participation of various segments of society including gender and youth patterns; the impact on agriculture, rural livelihoods and food security.

There are different empirical methodologies used to estimate the potential effects of EPAs. Some studies use the Computable General Equilibrium (CGE) model to estimate whereas others employ the Partial

Equilibrium (PE) model. While the CGE model is arguably the most appropriate approach in estimating the impact of EPAs, it is not best suited for analysing trade in Africa. This is because although it is possible to capture the interaction between various factors and take the linkages of the economy into account, the CGE model requires detailed data that is not readily available in many African economies. Further, it does not allow for sectoral disaggregation on a 6 digit HS code level which is important when carrying out trade negotiations. The PE model is appropriate in the sense that it is possible to get more detailed information on possible effects at the sectoral level. This disaggregation creates the possibility of getting improved results that examine welfare effects by sectoral coverage. The WITTS/SMART model is one PE model that has been used to estimate the impact of EPAs.[10] Under this model, the welfare effects are computed based on the current level of trade, the size of tariff reductions as well as the import demand elasticity.

A number of studies have been carried out on EPAs addressing policy issues on the one hand and welfare effects on the other. In a study to investigate the gains and losses associated with EPAs for ACP countries (Karingi, et al. 2005), it was observed that this would lead to a decrease in the production of natural resources, energy and cotton with a converse increase in fishing, animal products, livestock, crops, sugar, oilseeds, vegetables and cereals for Sub-Saharan Africa (SSA) countries. With regard to manufacturing in SSA, the study estimates an increase in clothing, textiles and agricultural production under the EPA but a decline in heavy industry, medium and low technology industries as well as clothing and textiles sectors if full reciprocity is factored in. The same applies to fishing, livestock and vegetables when full reciprocity is considered.

An impact study analysing the impact of EPAs on Kenya, Uganda and Tanzania (Milner, et al. 2005) established that there are gains for consumers but losses in the production sector. In the case of Kenya, the losses outweigh any benefits of liberalising under EPAs. This can be attributed to the production sector's decline as the manufacturing industry will be negatively affected by EU competition. These findings seem to mirror those of another study on Trade in Services liberalisation under EPAs (Hinkle & Schiff 2004) which established benefits to SSA with regard to consumer gains with transport, telecommunication and financial sectors. Another study covering the entire ACP region makes findings to the effect that this will result to significant decreases in tariff revenues to the extent of between 70 to 80 per cent with the exception of the Pacific region which has no significant effect on tariff revenue. Therefore, the implementation and adjustment costs of implementing the EPAs would include, among other things, costs that will impact greatly on the ability of these countries to maintain competitiveness even as they integrate into the global economic system. These include:

- tariff revenue losses and the associated costs of creating new forms of tax administration;
- adjustment measures for loss of competitiveness and restructuring of domestic industries;
- the costs of establishing a framework and institutions to address the harmonisation and coordination of customs procedures, standards, and border controls among other issues;
- implementing social safety net spending schemes to mitigate the losses incurred as a result of EU competition

The tables below indicate the empirical indices of some of the potential effects of trade liberalisation under EPAs for some EAC countries. These include long-run and short-run welfare effects of a full liberalisation over various phases as well as potential fiscal losses.

Table 2: Welfare Effects of a Full Liberalisation (all tariffs equal zero)

ALL PRODUCTS			
	Kenya	**Tanzania**	**Uganda**
Consumption	2100.62	2051.05	255.62
Diversion	-76760.92	-34380.72	-29559.79
Creation	46416.89	57062.36	63250.91
Total	-28243.41	24732.69	33946.74
in %	-0.55%	1.01%	2.06%
Revenue	-228347.2	-124062.5	-90611.12
NON MANUFACTURING			
	Kenya	**Tanzania**	**Uganda**
Consumption	392.53	803.24	64.01
Diversion	-18658.82	4166.82	-9814.55
Creation	33953.27	30997.74	38892.14
Total	15686.97	35967.8	29141.6
in %	0.97%	5.93%	5.36%
Revenue	-63662.65	-25342.99	-24412.88
MANUFACTURING			
	Kenya	**Tanzania**	**Uganda**
Consumption	1957.71	1259.08	193.23
Diversion	-74954.16	-49647.93	-26536.35
Creation	15487.02	33311.55	29379.43
Total	52250.47	-15077.31	3036.31
in %	4.72%	-0.65%	0.21%
Revenue	-202989.4	-121830.8	-80569.24

Table 3: Short-Run Welfare Effects of a Tariff Reduction according to the EAC Interim Agreement (after 5 years)

ALL PRODUCTS			
	Kenya	Tanzania	Uganda
Consumption	689.34	27.35	29.23
Diversion	-26641.35	-20998.8	-3702.75
Creation	5520.45	4754.79	3883.86
Total	-20431.56	-16216.65	210.34
in %	-0.36%	-0.55%	0.01%
Revenue	-78259.52	-44151.47	-8585.84

NON MANUFACTURING			
	Kenya	Tanzania	Uganda
Consumption	1	13.2	0
Diversion	-73.26	-106.34	-118.94
Creation	675.66	16.14	619.1
Total	603.41	-76.99	500.16
in %	0.03%	-0.01%	0.08%
Revenue	-169.6	-400.74	-242.44
MANUFACTURING			
	Kenya	Tanzania	Uganda
Consumption	688.34	14.15	29.23
Diversion	-26568.09	-20892.46	-3583.81
Creation	4844.78	4738.65	3264.76
Total	-21034.97	-16139.66	-289.82
in %	-0.53%	-0.72	-0.02%
Revenue	-78089.91	-43750.73	-8343.4

Table 4: Long-Run Welfare Effects of a Tariff Reduction according to the Interim Agreement (end of transition period – 28 years)

ALL PRODUCTS			
	Kenya	**Tanzania**	**Uganda**
Consumption	1347.27	74.09	116.85
Diversion	-40832.61	-28107.73	-15822.8
Creation	10849.89	17725.59	11739.78
Total	-28635.44	-10308.06	-3966.17
in %	2.17%	-0.35%	-0.20%
Revenue	-5681.96	-61453.07	-38126.76
NON MANUFACTURING			
	Kenya	**Tanzania**	**Uganda**
Consumption	349.96	34.8	4.5
Diversion	-1481.43	-905.99	-818.37
Creation	1249.85	2126.61	1533.12
Total	118.38	1255.43	719.25
in %	0.01%	0.18%	0.12%
Revenue	-6907.59	-2483.71	-2071.51

MANUFACTURING			
	Kenya	**Tanzania**	**Uganda**
Consumption	997.31	39.29	112.36
Diversion	-39351.18	-27201.75	-15004.42
Creation	9600.04	15598.98	10206.65
Total	-28753.83	-11563.48	-4685.42
in %	-0.73%	-0.51%	-0.34%
Revenue	-110846.2	-58969.35	-36055.25

Note: Units are 1000 USD

Source: Vollmer, S., Martinez-Zarzosoy, I., Nowak-Lehman, F., and Nils-Hendrik, K., (2009) 'EU-ACP Economic Partnership Agreements Empirical Evidence for Sub-Saharan Africa'. Background Paper to the World Development Report 2009.

These proposed changes to the existing trade regime come will come with attendant costs in the short to medium term. Such costs could be attributed to the implementation of new rules, establishment of institutions as well as the adjustment of economic operators to the new regulatory framework contemplated under the EPAs. While the EU market is intended to be opened to regional goods, structural deficiencies and supply-side constrains may prevent local industries from fully exploiting the EU market albeit facing stiff competition from EU goods within the regional markets.

It is to the foregoing challenge that the chapter on development cooperation within the EPAs will address itself to. It is meant to address the foremost objective of ensuring that the EPA does not leave the countries worse off than they were before making commitments under the EPA. This will involve the deployment of resources to the EAC states to strengthen their ability to benefit from the implementation of the trade framework. It is therefore imperative to examine the proposals developed under the Framework EPA on how financing is to be channelled to the EAC states. This paper shall therefore proceed to examine the financial mechanism developed under the EAC/EU FEPA.

3.0   Development Cooperation and Financing Mechanisms under Economic Partnership Agreements

One fundamental aspect of the Cotonou Agreement was to shift the ACP/EU partnership from a limited market access framework to one that emphasised development cooperation. The cooperation envisaged under the CPA was stated at Article 21.1 as one aimed at supporting *"the necessary economic and institutional reforms and policies at national and/or regional level, aiming at creating a favourable environment for private investment, and the development of a dynamic, viable and competitive private sector"*. The cooperation, with regard to economic and trade cooperation, sought to deploy a comprehensive approach that laid particular emphasis on addressing the supply-side constrains through trade development measures as a means of enhancing competitiveness. This is the premise upon which the EPA texts included a chapter on economic and development cooperation. Under Article 36 of the FEPA, the parties *"reaffirm their recognition of development needs of the EAC region, and their commitment to ensure that EPA is a tool for development which will promote and consolidate regional integration and aid the integration of EAC into the global economy"*.

The intended objective of the cooperation is to *"promote sustained growth, strengthen regional integration and foster structural transformation and competitiveness to increase production, supply capacity and value addition of the countries concerned"*. With regard to the financing process, the EC restates its commitment to contribute towards the resources required for development through the 10th European Development Fund (EDF) Regional Indicative Programme, Aid for Trade and the EU budget. It is important to briefly examine these financing mechanisms and how they are channelled to EAC countries.

3.1   The European Development Fund (EDF)

The EDF is the main financial vehicle by which the EU channels funds for aid for development cooperation to the ACP states. The fund was established under the 1957 Treaty of Rome to grant technical and financial assistance to African countries but later expanded to include the ACP configuration. It has been operational since 1958 and is financed through voluntary contributions from EU countries with five year financial cycles known as "envelopes". This fund has had several instruments including the National Indicative Programmes (NIP), Regional Indicatives Programmes (RIP), the structural adjustment facility, the emergency relief facility and the refugee support facility. EDF has also phased out some facilities such as the System of Stabilisation of Export Earnings from Mining (SYSMIN) and the *Système de Stabilisation des Recettes d'Exportation* (STABEX) which were used to support agriculture and

mining activities. The EDF is managed by the European Commission on behalf of the EU member States which in turn gets direction on its usage through an established committee named the EDF Committee. Disbursement is made through Country Strategy Papers and Indicative Programmes made by each country.

The Cotonou Agreement made fundamental changes to the EDF and introduced a long-term facility for development cooperation that was to finance NIPs, a facility to support regional cooperation and integration of ACP states, as well as an investment facility. The EDF is a cumulative facility that provides assistance for a wide range of development programmes apart from trade related aid. The argument advanced by ACP countries against the utilisation of the EDF to finance EPAs through trade-related assistance is that such would require a shift of resources from focal areas like health, education, rural development or water.[11] This has been countered by the EC with the assurance that the resources allocated under EDF would be substantially increased under the 10th EDF.

3.1.1   Implementing the 10th EDF

The implementation period for the 10th EDF covers the period between 2008 and 2013. The EU has committed €22.6 billion towards financial assistance under the 10th EDF. While the EU has pledged to factor in the needs of ACP countries stemming from negotiation and implementation of EPAs, the framework of such agreement remains inconclusive. This is indicated by the fact that the amount earmarked under this period is a cumulative sum and does not state the amounts set aside for trade-related development support. While it could be said that the amount is € 7.4 billion or 48.6 per cent above the previous period, this falls short of the commitments made by the EU at the 2002 EC Meeting in Barcelona and the July 2005 G8 Summit to increase its development assistance flows as a percentage of its Gross National Income (GNI) to 0.39 per cent in 2006, 0.56 per cent in 2010 and 0.7 per cent in 2015. The allocation marks a marginal increase as opposed to an amount of € 27,623 going by the EU's previous commitment. The amount allocated falls within the scope of a "business as usual" approach that has been the hallmark of aid disbursement.

Considering that the ACP states would require greater amounts to adjust[12], the allocated amount falls below what might be necessary especially since the amount committed does not necessarily translate to the actual disbursed amount. Further, an adjustment to the Cotonou Agreement that changed the commencement date of the 9th EDF from the "*date of signing*" to the "*date of ratification*" of the agreement exposes the financial instrument to a long and arduous process of EU states ratification.[13] Making commitments on the premise of adjustment support from the EDF under such an unpredictable regime would be detrimental to ACP states especially in light of the global financial crisis.

3.2   Aid for Trade

Financial support under the AfT mechanism entails development assistance being provided to support the efforts of developing countries to develop their basic economic infrastructure and enhance their trade-related skills to effectively benefit from trade opening. AfT came into being at the sixth WTO Ministerial Conference with the intention to "*help developing countries, particularly LDCs, to build the supply-side capacity and trade-related infrastructure that they need to assist them to implement and benefit from WTO Agreements and more broadly to expand their trade.*"[14] A taskforce was created to provide recommendations on how to operationalise AfT. The taskforce identified six main components of AfT as including trade policy and regulations, trade development, trade-related infrastructure, building productive capacity, trade-related adjustment as well as other trade-related needs. It can be categorised into two categories namely Trade-Related Capacity-Building (TRCB) and Trade Related Technical Assistance (TRTA).

In the case of the former (TRCB), it entails key issues including provision of physical infrastructure[15], the establishment of productive capacity for trade and the adjustment by enterprises and households to developments in trade and trade policy. In the latter case (TRTA), it is intended to enable a recipient country in formulating and implementing a trade development strategy and create a conducive environment for increasing the volume and value addition of exports, diversifying export products and markets and increasing foreign investment to generate jobs and trade; stimulate trade by domestic firms and encourage investment in trade-oriented industries; and participate in and benefit from the institutions, negotiations and processes that shape national trade policy and the rules and practices of international commerce. The key "missions" of AfT initiatives is understood as being a catalyst for trade reforms, facilitating the expansion of trade, and mobilising fresh funds for development.

The global initiative for AfT was launched in 2005 at the G8 Summit in Gleneagles, Scotland. During this meeting, the EU member States made commitments to increase the percentage of their GNI to finance development cooperation. As earlier stated, this would involve a shift from 0.38 per cent in 2005 to 0.56 per cent in 2010 and 0.70 per cent in 2015. However, commitments made have not been matched by actual action. In many cases, there have been cases where commitments are made but actual disbursements fall short of the stated commitments.

3.2.1   Aid for Trade and the European Union's AfT Strategy

The AfT programme forms part of the EU's Official Development Assistance (ODA) and is financed through the regular EC budget as well as the EDF facility. The ODA levels for the EU have fallen short of its 2005 commitments for a while. In furtherance of the objective of adhering to the stated commitments, the EU, on October 15, 2007, developed its AfT strategy in a joint policy initiative aimed at "*providing for a double and complementary focus on more resources to AfT and better impact on development objectives*". This AfT strategy centres on actions organised under five key pillars including:

1. Increasing the collective volumes of EU AfT within the ambitious development commitments to raise overall EU aid gradually[16];
2. Enhancing the pro-poor focus and quality of EU AfT;
3. Increasing EU-wide and member States' donors capacity in line with globally agreed aid effectiveness principles;
4. Building upon, fostering and supporting ACP regional integration processes with an ACP-specific angle of the Joint EU AfT Strategy; and
5. Supporting effective AfT monitoring and reporting

It should be noted that the commitments made under this strategy do not constitute binding commitments that need to be followed by the EU member States. In fact, the text makes it clear that the wording "*the EU will*" is to be understood as referring to the member States and the EC "*acting on a voluntary and flexible basis*". The EU has pledged to allocate €1 billion from the Community and €1 billion from EU member States to cover the first two categories for trade policy and regulations and trade development under Trade-Related Assistance (TRA). However, no financial commitments have been made for the "wider aid for trade agenda" which includes trade-related infrastructure, the building of productive capacity, trade-related adjustment and other trade-related issues. Although the EU makes justification for this, the Organisation for Economic Co-operation and Development (OECD) figures list it as "*a major donor in trade-related infrastructure and productive capacity*". As a strategy to promote an effective response to the wider AfT agenda, the EU then proposes to "*contribute to the absorption of net fiscal impact resulting from tariff liberalisation in the context of EPAs in full complementarity with fiscal reforms*". The EU states that its

contribution to regional funds is on a "voluntary" basis.

3.3 The European Union Budget

The EU management and regulation of the EU's budget system is done through the Treaty on the functioning of the EU (the Treaty of Lisbon) which sets out the general principles[17], the principle of funding the budget from own resources[18], the multi-annual financial framework which caps expenditure ceilings for at least five years[19], a schedule for each financial year[20], and procedures for budget implementation and discharge.[21] This budget is mainly financed through the Community's own resources[22]; taxes on EU staff salaries; contributions from non-EU countries for certain programmes; as well as fines on companies for the breach of EU competition laws. The community sets out its spending priorities through the multiannual financial framework that is developed to cover phases in the budget cycle. The current framework contains three parts with provisions relating to definition and implementation provisions, improvement of inter-institutional collaboration during the budgetary procedure[23]; as well as provisions relating to the sound financial management of EU funds that binds all institutions in the entire period the agreement is in force.

The 2007-2013 financial framework identifies three main priorities for EU expenditure including harnessing European economic integration (headings 1 and 2) to the broader goal of sustainable growth, by mobilising economic, social, and environmental policies; strengthening the concept of European citizenship (heading 3) by creating an area of freedom, justice, security and access to basic public goods and services; and establishing a coherent role for Europe on the global stage (heading 4), inspired by its core values, in the way it assumes its regional responsibilities, promotes sustainable development and contributes to civilian and strategic security. The fourth heading covers all external action relating to foreign policy by the EU. However, it does not include the EDF as the European Council and Parliament rejected a proposal by the EC to include it in the EU budget.[24] The other two headings relate to administration and compensations.

To make provision for flexibilities to the strict disciplines in the financial framework, the EU budget contains flexibility instruments. These include the Emergency Aid Reserve[25] that is designed to respond to specific aid requirements for non-EU countries that were unforeseeable when the budget was drawn up. The fund affords priority to humanitarian operations, but could also be used for civil crisis management and protection if need be. The other instruments are the EU Solidarity Fund that releases financial aid following major disasters in an EU member State or aspiring member, the Flexibility Instrument (€ 200M) to provide funding in a financial year for clearly identified expenses that could not be covered by one or more budget headings without exceeding the expenditure ceilings, and the European Globalisation Adjustment Fund (€ 500M) that aims to help workers reintegrate into the labour market where they have been displaced by major structural changes in world trade patterns. Having examined the financial structure that is being proposed by the EU to fund the EAC/EC EPA, it is prudent to now examine the development text and matrix proposed for funding within the broader context of the EAC.

4.0   The EAC/EC EPA Development Cooperation Text and Development Matrix

In an attempt to address the challenges of implementing a comprehensive EPA and make use of the market access opportunities attendant to it, the EAC proposed the inclusion of an elaborate text on economic and development cooperation with an accompanying development matrix. Under the text, it is acknowledged that there are "*new challenges derived from the implementation of the EPA and that supporting the implementation of the EPA is a priority".[26]* To address the stated challenges, the parties agree to mobilise "*additional*" resources to the financial framework of the EC from EU member States and other donors as well as expanding AfT commitments relating specifically to EPA support requirements and adjustment costs. Financing under this framework is to be carried out within the framework of the rules and relevant procedures provided for by the Cotonou Agreement specifically within the programming procedures of the EDF and within the framework of the relevant financial instruments under the general budget of the EU.

The mobilisation of sufficient resources in that respect is to be done on a "*predictable, timely and sustainable basis*".[27] The EAC commits to establish an EAC EPA Fund for channelling and coordinating resources to facilitate the implementation of the EPA. The EC is to contribute to this fund and the parties are to carry out joint monitoring and coordination of the resources. The agreement is to be implemented according to the development cooperation strategy that will be measured against jointly agreed development benchmarks annexed to the agreement. The scope of economic and development cooperation is stated to include, *inter alia*, infrastructure; agriculture and livestock; private sector development; trade in services; fisheries; natural resources and the environment; Trade Related Issues[28]; mobilisation of resources; EPA adjustment costs; as well as cross-cutting issues such as capacity building and EPA institutional development, policy and regulatory reforms, and research and development.

It is acknowledged that the implementation of EPAs will have challenges on the economies of the EAC partner States. To that extent, cooperation with regard to support to EPA adjustment costs is to include social, economic and environmental areas.[29] This is to be done with the objective of facilitating mitigation against instabilities in the EAC partner States resulting from implementation of the EPAs. In order to support the mitigation of the adverse effects of implementation, it is proposed that the EC supports such mitigation. This is to be done subject to the development clause and horizontal issues. The proposed areas of cooperation to that effect include:

   i.   Providing financial resources to cover loss of government revenue;

   ii.   Supporting establishment of a compensatory framework to cover loss of competitiveness of productive sectors within EAC partner States;

   iii. Providing financial resources to compensate for possible income loss and increased poverty within the populations of EAC partner States; and

   iv.   Providing resources to the EAC partner States to mitigate against adverse impacts on environment associated with EPA implementation.

The cooperation framework also contemplates that capacity building, institutional development, policy and regulatory reforms and research and development are important aspects that cut across the entire cooperation agenda. Capacity building and institutional support is therefore proposed to entail all aspects of trade related capacity building under the agreement.[30] The remaining provisions cover policy and

regulatory reforms as well as research and development. With regard to mobilisation of resources, the text proposes a financial undertaking by the EC to put at the disposal of the EAC financial assistance to contribute to the implementation of the programmes and projects to be developed under the areas of cooperation as detailed in the agreement and the development matrix.[31]

4.1.1   The EAC/EC EPA Development Matrix

As part of the EAC/EU EPA text on economic and development cooperation, the EAC partner States have developed a draft matrix of core development projects to be earmarked for financing under the EPA. The matrix identifies 12 core areas to which funds are to be channelled. These include dredging and expansion of the EAC ports and navigation aids; development of inland ports and the Lake Victoria basin infrastructure; development of the missing road links to the EAC corridors; development of the East African railway network; development of the EAC air transport systems; development and expansion of the EAC energy infrastructure; development of gas, petroleum and wind energy infrastructure; trade facilitation; Information and Communication Technology (ICT); fisheries infrastructure development; development of agricultural, livestock and supporting industrial services; as well as tourism development.

The matrix identifies approximately 83 projects with each indicating the estimated cost as well as the financing gap to enable implementation of the project. These projects could be categorised into various aspects including trade policy and regulations, trade development, and building productive capacity. The matrix does not provide any estimates in relation to trade-related adjustment or other trade needs. Each of the projects identified by the EAC countries indicates the contributions of the EAC partner States, other donors' contributions and the proposed implementation period for the project. The matrix also gives an indication of the status of the project that gives information as to whether the project is at the feasibility stage, it has been initiated or whether it is yet to be initialled. The tables below indicate the projects, estimated costs and the gap to be financed as indicated by the EAC States.

The EAC/EC EPA Draft Development Matrix Summary

	Kenya			Tanzania			Rwanda			Burundi		
	Number of Projects	Total Estimated Cost ($ Million)	Gap To Be Financed	Number of Projects	Total Estimated Cost ($ Million)	Gap To Be Financed	Number of Projects	Total Estimated Cost ($ Million)	Gap To Be Financed	Number of Projects	Total Estimated Cost ($ Million)	Gap To Be Financed
A	2	118.42	118.42	4	667.32							
B				1	160	159.85				3	15.92	15.92
C	5	1054.49	264.33	8	1049.7	2779.69	3	298.45	236	4	121	121
D	1	421.05	421.05	2								
E	1			3	671.12	302.7				1		
F	2			3	1868.5	1360	3	1300	1300	2	1.92	
G	3	818.63	818.63	1	70	70	1	502	502	1		
H	2	307.7	307.7	6	137.54							
I	1	179.5	179.5			152.55	4	58				
J	3	353.1	353.1	2	8.198	8.198						
K				6	18.96	14.82						
L	1	29.4	29.4									
TOTALS	21	3,282.29	2,492.13	36	4,651.34	4,847.81	11	2,158.45	2,038.00	11	138.84	136.92

Source: Author's compilation from the EAC/EC EPA Draft Development Matrix Summary

KEY

A - Dredging & Expansion of East African Coastal Ports and Navigation Aids
B - Development of Inland Ports and the Lake Victoria Basin Infrastructure
C- Development of the Missing Road Links to the East African Corridors
D- Development of the East African Railway Network
E- Development of EAC Air Transport Systems
F- Development and Expansion of EAC Energy Infrastructure
G- Development of Gas, Petroleum and Wind Energy Infrastructure
H- Trade Facilitation
I - Information Communication and Technology
J- Fisheries Infrastructure development
K- Development of Agricultural, Livestock & Supporting Industrial Services
L- Tourism Development

	Uganda			Joint Project (KEN,UG,TZ)			Joint Project (TZ,RWA)		
	Number of Projects	Total Estimated Cost ($ Million)	Gap To Be Financed	Number of Projects	Total Estimated Cost ($ Million)	Gap To Be Financed	Number of Projects	Total Estimated Cost ($ Million)	Gap To Be Financed
A									
B	1	31.32	28.83	1	157.89				
C									
D	2	1028.3	752.5				1	3800.00	3800.00
E									
F	3	2928.8	1776.84						
G									
H	1	96.41	96.41						
I									
J									
K	1	34.88	14.56						
L									
M	2	837.21	604.6						
TOTALS	10	4,956.92	3,273.74	1	157.89	157	1	3,800.00	3,800.00

KEY

A - Dredging & Expansion of East African Coastal Ports and Navigation Aids
B - Development of Inland Ports and the Lake Victoria Basin Infrastructure
C - Development of the Missing Road Links to the East African Corridors
D - Development of the East African Railway Network
E - Development of EAC Air Transport Systems
F - Development and Expansion of EAC Energy Infrastructure
G - Development of Gas, Petroleum and Wind Energy Infrastructure
Industrial Services

H - Trade Facilitation
I - Information Communication and Technology
J - Fisheries Infrastructure development
K - Development of Agricultural, Livestock & Supporting

L - Tourism Development
M - Promote and strengthen industrial development

NB: The figures for Uganda are not from the composite matrix but from a different source; SEATINI Uganda (2010), *Financing the EPAs: An Assessment of the Viability of Aid for Trade, EDF and EU Budget Funding Initiatives for the EAC EPA.* SEATINI Uganda

4.1.2 Challenges in Financing the EAC/EC Economic and Development Cooperation Chapter of the EAC/EC Partnership Agreement

While the EAC's proposals on the economic and development cooperation text seeks to include binding commitments on the part of the EC to finance development under the EPAs, this has not been accepted by the EC. The proposal for the inclusion of the matrix as part of the binding commitments has been rejected with the EC insisting that it is not possible to fund the EAC/EC EPA beyond the resources made available under the EDF, the EU budget and AfT modalities. The EU has also insisted that the matrix need not be included in the final text as it is an EAC document that may provide reference during EPA negotiations but should not form part of the comprehensive text agreed upon by the parties. It is further contended that the matrix could be financed through the modalities set up to promote cooperation. This has formed part of the contentious issues that have dragged the EPA negotiations beyond the contemplated deadline.

During the 8th negotiations session of the technical officials of the EAC/EC EPA held from the 23-24 February 2010 in Brussels, Belgium, this was reiterated. Article 36 of the interim EPA was proposed to read;

> ...the parties agree to cooperate in the implementation of this Agreement on the basis of the EAC [EPA] development matrix. The parties shall periodically jointly review the EAC development matrix to address the changing needs of the EAC party; the EC party and the EU member States confirm that they shall contribute towards the resources required for development from EDF resources, the EU budget and Aid for Trade. The parties agree to jointly work together to mobilise additional resources including from the EU member States and multilateral donors. The EAC party shall contribute to the implementation of development programmes through its regional financial support mechanisms

This could be interpreted as meaning that the matrix is an EAC document that is complementary to the EPA text but should not form part of binding commitments in the comprehensive text. However, the stated sources of financing are also fraught with complications starting with the fact that predictability of funding is not a given in these instruments as there are a number of challenges that come with the process. These are addressed in the following part.

4.1.2.1 Challenges in Funding the EPA through the EDF Framework

The EDF facility has been the hallmark of ACP/EU cooperation from 1957. However, its implementation, even after the amendment under the Cotonou Agreement has been fraught with complications. Among the challenges of funding EPAs include:

- The EDF facility is a basket fund that funds many other initiatives. It is therefore difficult to ascertain the exact amount set aside for trade-related development support. Therefore, a cumulative allocation may pose the danger of failing to adequately allocate funds for trade-related adjustment to the detriment of EAC countries.
- There is a significance variance between funds usually allocated and the actual funds that are disbursed. The "de-allocation" process usually takes funds back to the EU. This therefore means that while allocations may indicate certain amounts, in most cases the funds could also include funds that have been brought forward from a previous implementing phase.
- The amendment brought under the Cotonou Agreement that changed the date of commencement of the EDF cycle from the "date of signing" to the "date of ratification"

means that the financial instruments of the EU have to first undergo ratification before being effected. This could lead to delays and unpredictability in the release of funds. The 9th EDF is clear testament to this complication. Securing ratification at a time of the global financial crisis could possibly be more difficult.

- The true cost of adjustment remains a disputed issue but it is not clear that the funds allocated under the EDF will be sufficient to cover for trade-related adjustment support.
- The EDF is not a component of the EU budget and financing under the framework may increasingly face challenges in the long-term. This is evident by the fact that the European Council and Parliament rejected a proposal by the EC to include it in the EU budget.

4.1.2.2 Challenges in Funding the EPA through Aid for Trade

The challenge of securing funding for the EPA is equally present in the case of AfT. This must be interpreted with the EU's AfT strategy in mind. The challenges of funding the EAC/EC EPA through AfT include:

- The EU AfT strategy understands the participation of EU member States as being one where they act "on a voluntary and flexible basis". This precludes binding financial commitments on the part of the EU.
- The establishment of the EAC EPA Fund for channelling and coordinating resources offers a legal "loophole" that may complicate the possibility of a binding agreement. This is because under the EU AfT strategy, the EU states that it will "participate on a voluntary basis in regionally-owned funding mechanisms, such as regional funds".[32] By establishing this fund as an EAC fund, this may present the challenge where the EU could state that its participation is to be done on a voluntary basis.
- The understanding of the AfT component is not very clear[33] and this results to the disbursed AfT funds being reallocation of existing resources rather than additional resources. They also create debt and are usually unpredictable and conditional in nature. This would make such funds unsuitable given that they are meant to fund a predictable pattern of liberalisation that may, however, lack the financial backing to cushion the EAC countries. It is for the foregoing reason that the Hong Kong Ministerial Conference asked that AfT funds should be new, untied, predictable and not debt creating.
- The EU's AfT strategy focuses on Trade Related Assistance which is understood to include AfT areas of trade policy and regulations as well as trade development. However, no specific financial commitments are made in the case of the "wider Aid for Trade agenda"[34] which is understood to include trade-related infrastructure, building productive capacity, trade-related adjustment and other trade needs. Although this is justified by stating that OECD figures indicate that the EU is a major donor in this respect, the failure to specifically allocate funds towards the wider AfT agenda may serve to reduce the funds available for the EAC development matrix given that it mostly comprises of trade-related infrastructure.

4.1.2.3 Challenges in Funding the EPA through the EU Budget

The EU budget makes allocations relating to foreign policy in its fourth heading, the Emergency Aid Reserve and the Flexibility Fund under the flexibilities in its budget. However, some challenges still remain if trade-related support is to be factored. These include:

- The EU budget system involves a complex interplay of inter-institutional bureaucracy that may not be able to provide funds on a timely and predictable basis.

- Although the Emergency Aid Reserve facility is designed to respond to specific and unforeseen aid requirements for non-EU countries, it affords priority to humanitarian operations, civil crisis and protection hence trade support may not be possible.
- The current financial crisis in Europe puts different priorities in the EU's budget structures and hence it may be difficult to secure funding for trade support in an increasingly strained budget that covers bailouts.
- The Country Strategy Papers which usually make provision for some funds to be sourced from the EC budget do not cover trade-related support and are usually stated to be available "subject to special procedures and availability".

4.2   A Comparative Outlook of other EPA Financial Instruments

The challenges identified above call for a concrete strategy that will address the concerns and interests of the EAC partner States in the implementation of the EPA. Such must put into consideration the various intricacies of EU funds and seek to establish an adequate and timely financial delivery framework to ensure that the intended objective that EPAs should leave countries in a better situation than they were is achieved. For the above reason, this paper will briefly explore some of the financial architecture that has been developed with respect to EPAs. Two structures; the Caribbean Aid for Trade and Regional Integration Trust Fund and the West African EPA Development Programme will be examined.

4.2.1   The Caribbean Aid for Trade and Regional Integration Trust Fund

The Caribbean Aid for Trade and Regional Integration Trust Fund (CARTFund) is a trust Fund that is financed by the Department for International Development (DFID) of the United Kingdom. It is administered by the Caribbean Development Bank. The key functions of the fund include supporting the implementation of the CARICOM Single Market and Economy (CSME) and helping the Caribbean countries signatory to the EPA between the Caribbean Forum (CARIFORUM) and the EC (CARIFORUM/EC EPA) to effectively benefit from implementation of the agreement.

The CARIFORUM States concluded an EPA with the EC in 2007 that posed significant implementation challenges to the CARIFORUM States. The agreement contained far-reaching obligations that included reciprocal trade in goods and trade in services and as undertakings with regard to competition, intellectual property, transparency in public procurement, as well as data protection. Some of the disciplines contained in the agreement extend well beyond WTO obligations. In the course of negotiations, effort had been made to identify strategic areas for support under the Regional Preparatory Task Force (RPTF). The RPTF developed a work programme that set out nine areas considered to be strategic for support to the region. These included fiscal adjustment and reform, Intellectual Property, Technical Barriers to Trade, Sanitary and Phytosanitary Measures, Competition and Innovation, Customs and Trade Facilitation, Trade in Services and E-commerce, Agriculture, Fisheries and Investment and Business Facilitation.

The Trust Fund was established with the objective to provide non-refundable resources to finance key national, sub-regional and regional projects in four areas namely:

a) EPA Implementation Support:
   i.   Support for work planning and implementation by CARIFORUM and the European Community's taskforce, fast-tracking effective proposals as necessary;
   ii.   Developing the EPA implementation monitoring policy, mechanism and institutional framework;
   iii. Completing the regional competition policy and institutional framework; and

       iv.   Completing the regional customs and trade facilitation policy and institutional framework.

b) Deepening CARICOM Economic Integration
       i.   Completing the legal and institutional policy and institutional framework for the implementation of the CSME;
       ii.   Completing the regime for free movement of people; and
       iii.   Establishing a framework for macro-economic and sectoral policy coordination.

c) Deepening the integration of the OECS member States, including formulation of an OECS trade policy.

d) Assisting potential beneficiaries of the Trust Fund in project preparation in the areas described above.

Under this framework, the EPA implementation process was given priority with 57 per cent allocation of resources with CARICOM and OECS integration accounting for 30 per cent and 4 per cent respectively. The projects are submitted from a range of stakeholders including government ministries and agencies, regional institutions, and private sector agencies with various thematic areas being addressed. The process has come to involve consultants after the initial screening process to improve proposals before an assessment by the CDB. These are then taken to steering committee for approval. Among the key developments in this fund include a shift to new thematic areas beyond the traditional scope of aid.

The challenge of this fund has been with regard to the absence of donor coordination which has resulted in the steering committee and the CDB operating in ignorance of other donor processes hence uncertainty and the possibility of duplication of efforts. This, however, is a model that could be considered by the EAC in setting up modalities of development funding and improvements could be made on it.

4.2.2 The Economic Community of West Africa EPA Development Programme

The Economic Community of West African States (ECOWAS) commenced EPA negotiations on October 5, 2003. The implementation of the agreement was intended to gradually create a free trade area that is consistent with WTO rules between ECOWAS and the EU; establish a trade and economic relation between the parties that prioritises development and poverty reduction; deepen regional integration in West Africa; improve the competitiveness of West African economies through capacity building and enhancement of production facilities; and improve market access for west African exports by ensuring compliance with standards and dismantling non-tariff barriers.

In furtherance of the above stated objectives, ECOWAS prioritised the accompanying measures and priority actions to be taken. In 2007, the parties agreed on the accompanying programmes for the EPA and the funding by the EC as being prerequisites for signing of the agreement. In early 2010, in the face of contentious issues blocking the conclusion of an EPA, a development text was agreed upon. The EPADP was thus adopted as a concrete accompanying measure to the EPA. At the last negotiation session held in Brussels from September 13-17, 2010, contention still remains on the implementation protocol of the EPADP regarding the principles, the sources of funding and the amount of funds to be disbursed under the programme.

The overall aim of the EPADP is to build a regional and competitive economy that is integrated into the global economy and can stimulate growth. The EPADP gives five key focal points to address underlying weaknesses. These include:

i.   Diversification and increase in productive capacities;
ii.   Developing intra-regional trade and facilitating access to international markets;
iii.   Improving and strengthening national and regional trade-related infrastructure;
iv.   Making the essential adjustments and taking into account other trade-related needs; and
v.   Implementation and monitoring and evaluation of the EPA.

The first three focal areas are designed at enhancing the positive impact of the EPA while the fourth seeks to minimise the adverse effects of the EPA. The last focal area seeks to promote the successful implementation of the EPA through a monitoring programme. It is expected that at the conclusion of the implementation period of the EPA, the production capacity of the West African region should be diversified and increased to enhance the supply capacity for both regional and global markets; intra-regional trade should have improved along with regional products being able to access international markets; the national and regional trade-related infrastructure should be improved with the concomitant lower transaction and production costs; the necessary adjustment by West African countries should have been made.

The proposed funding mechanism is to be phased in five-year programmes. Each of the focal areas has a set of priority activities arranged within a five-year period. These are costed in a matrix over the period. The first phase of five years has a matrix that is estimated at 9.525 Euros. The programme is to be funded through the EPA Regional Fund that is to be set up to channel funds at regional and national levels. The mechanisms or modalities are yet to be agreed upon. The EU has so far agreed to fund up to 6.5 billion Euros under the budget and contention still exists on the remaining deficit. These two financing models provide an insight into how the EPA funding mechanism could be structured. Based on the foregoing discussion, a number of conclusions and recommendations can be made for the EAC/EC EPA.

5.0   Conclusions and Recommendations

This paper set out to examine the development cooperation text and its accompanying matrix against proposals by both the EAC and the EC. This was intended to look at the financial mechanism and establish the legal implications of the provisions. What conclusions and recommendations can we draw then? The next part of this paper draws conclusions and offers a range of recommendations for the EAC. It is hoped that these will contribute to the on-going debate and process and inform the decision-making process before the conclusion of a comprehensive agreement.

From an analysis of the financial mechanisms of the EU and the proposals under the EAC/EC EPA framework, a number of important conclusions can be made. First, the EDF facility, Aid for Trade and the European budget, although being the EU's official financial vehicles are not best placed for adequate funding of the EAC EPA development cooperation framework. Further, it is concluded that the design and architecture of these instruments poses a challenge to the EAC when the complete framework and strategy of the EU is factored in when assessing how the funds are to be channelled. Where funds are set aside, they do not adequately cover the issue of trade-related support in some instances or the supporting legal framework and understanding serves to complicate the disbursement of such funds on a timely and predictable basis. This is despite the fact that once trade obligations have been made, it is difficult to reverse the same without offering an alternative since the regime will be based on the WTO framework.

It is also concluded that the setting up of an EAC EPA Fund to be owned by the EAC may also limit

the funding mechanism since the EU's AfT strategy precludes compulsory funding for regional funds. From the matrix, it could be concluded that the EAC partner States have not made any allocation for funds relating to adjustment support. Finally, it can be deduced from the EU's proposals that what is intended is a non-binding financial commitment through its usual financial mechanisms without additional resources to fund implementation of the EPA.

In light of the foregoing conclusions on the financial architecture of the EAC/EC EPA, the following specific recommendations are suggested:

1) The EAC partner States should consider the setting up of a joint trust fund to be administered by the East African Development Bank with contributions from the EU through its various financial mechanisms. The EAC EPA Fund could have its structure established as such.
2) The development text and matrix should be included as part and parcel of the EPA text with binding commitments to the same effect.
3) The EAC States should include an estimate of EPA adjustment funds as part of the matrix as a binding financial commitment on the part of the EU.
4) There should be coordination between the EAC States, the EU and other donors. This is important since some of the projects earmarked under the composite matrix have since been funded by other partners. There could be duplication or loss of value for the EAC if some of the projects under the matrix are funded elsewhere and the market access granted to the EU is not commensurate to the development support.
5) The EAC should consider adopting a framework that closely resembles the CARTFund and strive to address its shortfalls as well as change it to local circumstances.

In conclusion, an attempt has been made in this study to address the objectives that were set out in the first chapter of this work. It cannot be gainsaid that for the EPAs to be meaningful, if at all, it is important that the above recommendations be followed. It is only when these recommendations are followed that it can be safely concluded that the trade liberalisation under the EAC EPA will meet the requirement that is required to propel the region to its rightful place in the global political economy.

(Endnotes)

1   Panel Reports, EEC – *Import Regime for Bananas*, 156-164, DS38/R (1994) & *European Communities – Regime for the Importation, Sale and Distribution of Bananas*, WT/DS27/AB/R

2   Over the duration of the Lomé Conventions, the ACP share of world exports had fallen from 3.4 percent to 1.1 percent while the total volume of EU imports from the ACP declined from 6.7 percent in 1976 to 2.8 percent in 1999. Further, the levels of Foreign Direct Investment (FDI) from the EU to ACP countries fell from 2.8 in 1996 to 1.7 percent in 1999.

3   Article 167 (1) of the Lomé IV Agreement

4   Article 34(1) of the Cotonou Partnership Agreement

5   ESA members included Burundi, Comoros, The DRC, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Rwanda, Seychelles, Sudan, Uganda, Zambia and Zimbabwe.

6   Issues that remain unresolved include export taxes, the Most Favoured Nation (MFN) clause, development cooperation, and article 37 issues such as Rules of Origin, Trade Related Issues, Legal and Institutional Issues, and Agriculture.

7   Article 41(8) of the Rules of Origin as contained in Protocol I to the Framework EPA

8   The marketing year is used to refer to the period between October 1, and September 30, within a year.

9   See Annex II(d) of the EAC/EC Framework EPA

10   The model was developed by the UNCTAD secretariat and the World Bank as a simple tool to

quantify the impact of changes in trade flows as a result of trade partnership agreements.

11

12   The Commonwealth Secretariat estimates that the ACP states would require €3.3 billion for fiscal adjustment support; € 2.1 billion for trade facilitation/export development support; €1.5 billion for production and employment adjustment assistance; and €2.3 billion for skills and productivity enhancement support.

13   It should be noted that it is as a result of this amendment that the 9th EDF run from 2002-2008 since the approval of EU member States' parliaments took a long time. *Supra* (note 24) above

14   WTO Ministerial Declaration, WT/MIN (05)/DEC/W/ 22 December 2005, Para. 57

15   These include roads, ports, telecommunication, energy and electricity, transport systems, water supply and sanitation as well as trade support institutions including customs, trade finance, marketing and distribution facilities

16   This involves scaling-up total EU AfT in general as well as increasing the specific funding of Trade Related Assistance to reach € 2 billion annually by 2010 (€1 billion from EC, €1 billion from EU MS), as promised by the EU in 2005;

17   Article 310 of the Treaty of Lisbon

18   Article 311 of the Treaty of Lisbon

19   Article 311 of the Treaty of Lisbon

20   Articles 313-316 of the Treaty of Lisbon

21   Article 317-319 of the Treaty of Lisbon

22   This includes traditional resources including customs duties on imports from outside the EU and sugar levies where EU governments retain 25 per cent to cover the cost of collection; a standard percentage levied on a harmonised Value Added Tax base for each EU country; as well as a percentage levied on the GNI of each country.

23   This part contains rules relating to inter-institutional cooperation in general, establishment of the budget and provisions relating to specific matters including issues such as classification of expenditure, incorporation of financial provisions in legislative acts, and maximum rate of increase among others.

24   See budget explanations on the EC's website on <http://ec.europa.eu/budget/explained/budg_system/fin_fwk0713/fin_fwk0713_en.cfm#content_struct> (accessed 27 July 2011)

25   This fund is currently set at €221M per year (based on 2004 prices)

26   Paragraph 5 of the General Provisions of the EAC/EC EPA draft text on Economic and Development Cooperation

27   See paragraph 6 of the General Provisions of the EAC/EC EPA

28   These are stated to include Sanitary and Phytosanitary Standards (SPS), Non Tariff Barriers (NTB), Technical Barriers to Trade (TBT), customs and trade facilitation, trade development, investment, competition, trade Related Aspects of Intellectual Property Rights (TRIPs), metrology and statistics.

29   See title IX of the EAC/EC EPA draft text on Economic and Development Cooperation

30   These are stated to include institutional and human resources development in both public and private sectors; service standards to facilitate trade, commerce, and business transactions; ICT enabled spectrum management, institutional reforms to enhance electronic information system; sustainable production systems for product producers and service providers; Research and Development; e-commerce; new production technology; technical regulations, metrology, accreditation and conformity assessment; trade issues, and laws on arbitration and dispute resolution.

31   See title XI of the EAC/EC EPA draft text on Economic and Development Cooperation

32   Article 5(d) of the EU AfT Strategy

33   The data, in some instances, includes Regional Trade Arrangements, bilateral and multilateral aid, funds given under concessional loans, and Official Development Assistance.

34   Article 1 of the EU AfT Strategy

BIBLIOGRAPHY

Alero Agboghoroma, *et al*, (2010), *Aid for Trade: Making Trade Effective for Development Case Studies from Kenya, Tanzania and Uganda*, PricewaterhouseCoopers & Hamburg Institute of International Economics.

Aurelien Atidegla "The EPADP: A 'Smokescreen' aid for trade pushing for free trade between the EU and West Africa?", 2010, MAIS Policy Brief

Council of the European Union, *The EU Strategy on Aid For Trade: Enhancing EU Support For Trade-Related Needs In Developing Countries*. Council Conclusion 14470/07, Brussels, 29 October 2007.

CEC, 1996, *The Green Paper on Relations between the EU and the ACP Countries on the Eve of the 21st Century*. Luxembourg: Office for Official Publications of the European Communities (OOPEC).

Edgar Odari & Enga Kameni, 2010, *The Liberalisation of Trade in Services through the Economic Partnership Agreements: An Appraisal of the Legal and Regional Integration Implications in Sub-Saharan African Countries*. Forthcoming
European Commission, 2009, Aid for Trade, Trade Fact Sheet
European Research Office, 2007, The Mystery of the Lost 10th EDF
Fontagné, L., Laborde, D., and Mitonitonne, C., 2008, "An Impact Study of the EU-ACP EPAs in the Six ACP Regions", *CEPII Working Paper* No. 2008-04.

Henry S. Gill "Caribbean Aid for Trade and the Regional Integration Trust Fund", 2011, International Centre for Trade and Sustainable Development (ICTSD) *Policy Brief No. 4/2011*

Hinkle, L.E. and Schiff, M., 2004, "Economic Partnership Agreements between Sub-Saharan Africa and the EU: A Development Perspective", *The World Economy* 27(9): 1321-1333.

Karingi, S., Lang, R., Oulmane, N., Perez, R., Jallab, S., and H.B. Hammouda, 2005, "Economic and Welfare Impacts of the EU-Africa Economic Partnership Agreements" *Economic Commission for Africa ATCP Working Paper* No. 2008-10

Laird S. and A. Yeats, 1986, "The UNCTAD Trade Policy Simulation Model: A Note on the Methodology, Data and Uses", *UNCTAD Discussion Paper* No. 19, Geneva

Milner, C., O. Morrisey and A. McKay, 2005, "Some simple Analytics of the Trade and Welfare Effects of Economic Partnership Agreements", *Journal of African Economies* 14(3): 327-358

Panel Reports, EEC – *Import Regime for Bananas*, 156-164, DS38/R (1994) & *European Communities – Regime for the Importation, Sale and Distribution of Bananas*, WT/DS27/AB/R

R. Grynberg and A. Clarke (ed.), 2006, "The European Development Fund and Economic Partnership Agreements", Commonwealth Secretariat, Economic Affairs Division.

Sanoussi Bilal, 2008, "The Interim EPAs (IEPAs): An Assessment of the EAC/EU IEPA Market Access Aspects" paper presented at the Regional Dialogue on the "Seventh EPA": A regional Dimension to Trade and Development. 17-18 June 2008

Vollmer, S., Martinez-Zarzosoy, I., Nowak-Lehman, F., and Nils-Hendrik, K., 2009, "EU-ACP Economic Partnership Agreements Empirical Evidence for Sub-Saharan Africa". *Background Paper to the World Development Report 2009*.

Njiro Hill, ESAMI Road
P O Box 3030 Arusha, Tanzania
Tel: +255 732 972 202/195
Fax: +255 27 250 82 85
Email: trapca@esamihq.ac.tz;
 info@trapca.org
Website: www.trapca.org