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Feasibility of the Proposed Monetary Union in East African Community: Generalized Method of Moments Approach

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Abstract- This study examined the suitability of Theory of Optimum Currency as a basis for feasibility of proposed monetary union in East African Community (EAC) countries; Uganda, Burundi, Kenya, Rwanda and Tanzania. The study sought to determine symmetry of; monetary shocks; inflation rates; fiscal deficit, public debt, real Gross Domestic Product (GDP) and degree of openness. Exploratory was used employing panel data covering 2000Q1-2016Q4. Generalized Method of Moments approach was utilized. Results showed convergence in the real exchange rate was statistically significant and negative implying formation of a monetary union reduced combined GDP. Policy makers in EAC countries could concentrate in adapting unfulfilled macroeconomic convergence criteria and strengthening cooperation in monetary policy co-ordinations.

Keywords: feasibility, monetary union, theory of optimum currency area, convergence criteria, general method of moments, Kenya.

I. Introduction

The capability to issue money used for transactions is a power ordinarily reserved by a country's central government, and it is often viewed as constitutive of a country's autonomy. A monetary union occurs when different countries agree to share the same currency. In many ways, it is similar to a fixed exchange rate regime, in which parties preserve their unique national currencies as they choose to modify the relative supply of money to establish a fair rate of exchange. The choice to establish a common financial system is usually one step towards economic integration. Sacrificing one's own monetary independence and sharing a common currency with several other countries should be considered separately from being unable to manage to print own currency and thus unilaterally letting circulate another country's currency. The proponents of monetary unions usually aver that such a move would stabilize exchange and inflation rates as well as lower interest rates, along with enhancing trade among parties. Lately, monetary union is attracting a lot of attention among economists and policy makers.

The theory of OCA, pioneered by Mundell (1961), Mckinnon (1963) and Kenen (1969), suggested abolishing the national currencies of an area consisting of more than one country and the area operates under a single currency. Upon achieving this, the area becomes a monetary union which is one of the final stages of economic integration. In Europe, the Maastricht Treaty (1992) was established on the basis of the four grounds of low inflation, low interest rates, stable exchange rates and sound public finances. Gros and Thygesen (1998) note that monetary union concept is a comprehensive liberalization of capital transactions and full integration of banking and other financial markets together with the removal of exchange rate fluctuations and the irrevocable locking of exchange rate parties. According to Asante (2007), economic and political integration has been favored as a means of achieving higher growth and development, acceleration of poverty reduction and promoting national safety.

As posited by Geda and Kebret (2008) that monetary integration attempts should be assessed in the context of their objectives, and their political economic and institutional setups on which they operate, indeed monetary unions enter into signed agreements before they are established indicating their desire objectives. Provincial trade amalgamations, including that of a monetary union, have the potential to improve the living standards for members' citizens as well as promote economic development and alleviate suffering (UNECA, 2010).

Bumtaia (2015) noted that many countries have been motivated to enter into a monetary union primarily because this would allow them to achieve overall macroeconomic stability. For instance, countries in West Africa with a history of high inflation used the entry into the monetary union (the West African Economic and Monetary Union, WAEMU) as an institutional device to commit to a lower inflation which West African countries were unable to do on their own.

East African Community (EAC) consisting of Republics of Uganda, Burundi, Kenya, Rwanda and Tanzania is among the several regional monetary union projects that are being planned. Others include ECOWAS, COMESA and SADC whereas the common currency for Africa is a long-term goal of the African Union. Having a single currency for EAC region is an excellent idea since it would reduce business transaction costs, facilitate the distribution of commodities and generate wealth through competition

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which boosts the innovation and efficiency of the region. However, some of the pre-conditions of a monetary union are still unfulfilled. EAC nations have made progress in trying to establish a unified economic and financial union.

Considering that monetary union can serve as a means of getting access to a wider market and strengthen growth in order to achieve a higher level of national welfare (Jovanovi, 2007); policy makers of the five EAC member countries believe that monetary union is a fundamental tool for the transformation and improvement of the growth of economy in the region. Therefore, using a common currency invalidates the conversion of currencies between trading countries in a region. This minimizes the cost of doing business and leads to stability of prices.

According to the signed protocol of EAC (2013), the main objective is to foster a closer cooperation in political, economic, social, and cultural fields. Article 6 of the protocol indicates that the five-member states set out a process including macroeconomic convergence criteria, legal and institutional framework for the use of a single area of currency. The protocol laid groundwork for a monetary union which allowed the EAC member states to progressively converge their currencies into a single currency in the Community. The macroeconomic convergence criteria which shall be undertaken by the partner states are inflation, fiscal deficit, public debt and reserve ratio. Here, the focus is on price stability, sustainable fiscal deficit, sound management of public debt and maintaining desirable levels of foreign exchange reserves. Article18 (2) provides that the partner states shall undertake to adopt a single currency which shall be adopted by at least three partner states that meet the macroeconomic convergence criteria of monetary union. Article 18 (3) specifies that the partner states which adopt the single currency shall form the currency area.

Like other regional economic blocks elsewhere, EAC countries have put in place macro convergence criteria, as per Article 6, which have to be met by each member state before entering into the currency area. These convergence criteria include inflation rate, fiscal deficit, public debt and foreign exchange reserves which are the key macroeconomic convergence requirements for the viability of a currency union. Consequently, it is fundamental to understand the dynamics of these macroeconomic convergence requirements across the EAC members. The importance of a monetary union and the significant efforts made by the EAC towards establishing a currency union impels researchers in evaluating the ultimate viability towards the establishment of such integration. This study therefore sought to investigate the feasibility and the prospective impact of trade on economic growth of the proposed monetary union in East African community. This research investigated economic variables only, since these tend to influence political variables as well. Hawkins and Masson (2003) argued that the decisions to forgo national currencies for regional currencies lead to both political and economic stability in the long run. The main objective of the study was to analyze the feasibility and prospective impact of trade on economic growth of the proposed monetary union in East African Community. Specifically, the study sought to achieve the following objectives:(a) To determine the synchronization of monetary shocks among the members of the East African Community (b) To establish the synchronization of inflation rates between East African Community Countries (c) To determine the convergence of fiscal deficit among the East African Community countries (d) To establish the convergence of the public debt among the members of East African Community (e) To determine the convergence of real GDP among the East African Community Countries (f) To determine the degree of economic openness of East African Community Countries.

II. Materials and Methods

The motivation behind using a DSGE model to analyze the proposed single currency in EAC are two-folds. First, since equations that describe DSGE models are derived from the explicit modeling of the optimization problems of economic agents, the effects of policy changes on the expectations of economic agents are captured by DSGE models. This makes DSGE models more suitable for policy analysis especially in monetary policy and business cycles as pointed out by Lubik and Surico (2006) where they observed that previous studies failed to detect structural breaks following changes in monetary policy, because they did not control for the heteroskedasticity problem induced by policy changes in their econometric tests. They showed that once heteroskedasticity was controlled for, structural breaks were detected in the data following policy changes. Secondly, current generation of DSGE models has been proven to have good empirical performance giving better results compared to reduced-form models.

A GMM estimation begins with an economic theory and the data are used to produce estimates of the model parameters. Estimation is done under minimal statistical assumptions, and often less attention is given to the fit of the model.

In a method of moments, a population moment condition is that a vector of observed variables, v_t, and vector of k parameters θ, which satisfy a $kx1$ element vector of conditions:

$$E\left[f\left(v_t,\theta\right)\right]=0 \quad \text{for all } t \qquad (2.1)$$

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The method of moment estimator θ_T^* is used to solve the analogous sample moment conditions given as:

$$g_T(\theta^*) = T^{-1}\sum f(v_t, \theta_T^*) = 0 \quad (2.2)$$

Where T is the size of the sample.

Consequently, under the usual regularity conditions, $\theta_T^* \xrightarrow{P} \theta_0$, where θ_0 is the solution for equation 2.2, in which there are k unknowns and k equations leading to unique solution. Suppose that f is a $qx1$ vector and $q > k$ meaning there k unknowns and q equations implying that there is no unique solution.

GMM picks a value for θ such that it approaches closest to satisfy equation 2.2. The closeness can be defined by the following equation:

$$Q_T(\theta) = \left[T^{-1}\sum f(v_t, \theta)\right] W_T \left[T^{-1}\sum f(v_t, \theta)\right] = g_T(\theta)' W_T g_T(\theta) \quad (2.3)$$

In applying the GMM approach, there are pertinent advantages including the requirement is a moment condition in which there is no need to log-linearize any variable. Further, while non-linearities is not a problem when utilizing GMM approach, GMM is robust to heteroskedasticity and distributional assumptions.

The Generalized Method of Moments (GMM) of estimation of DSGE model was employed in analysis of synchronization of monetary shocks, inflation, fiscal deficit, public debt and degree of openness affecting members of the East African Community region.

Quarterly data from 2000Q1 to 2016Q4 was obtained from of the EAC member countries, namely Kenya, Uganda, Burundi, Rwanda and Tanzania. Much of the data for the study was gathered from the World Economic Outlook database of the IMF. The national bureau of statistics for every state was also a vital source of data. Respective central bank for each country was another source of data. There are 10 bilateral trade relationships with five countries. Thus, with 10 bilateral trade relationships and 68-time periods there are a total of 680 observations. Trade data (in billions of US dollars) was obtained from the IMF Direction of Trade Statistics (IMF DOTS). Real GDP and Population data were from the IMF World Economic Outlook. The distance data is obtained from the Time and date website (timeanddate.com) and the data on distance between capitals of member countries from the list of countries and outlying territories by total area.

III. Results and Discussion

a) Test for the Validity of the System GMM Instruments

We tested the validity of the instrumental variables was tested using the Sargan test and the results presented in table 3.1.

Table 3.1: Test of Validity

	GMM		Ivregress_GMM		Arellano-Bond	
	Betas	SE	Betas	SE	Betas	SE
_cons			869000000*	416000000	9.883784*	1.676
Independent variables						
L1.realGDP			0.6802264*	0.14	0.5347089*	0.078
RER			-230533.4*	153321.80	0.0003692*	0.000
IR			-19300000.0	15300000		
FD			-0.05	0.13		
PD			0.62	0.51		
Openness			256000000.0	209000000	-0.1184145*	0.048
Model Diagnostics						
R-square			0.9089			
Wald chi2			385.67		81.520	
Sig.			0.000		0.000	
Sargan test of over-identifying restrictions						
chi2					115.3275	
Sig.					0.2308	
* Indicates significant level at the 5 %						

Source: Author (2018)

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The common test for the validity of the instruments for system GMM is the difference Sargan test, which is χ^2 distributed, and under the null hypothesis of valid instruments. From the results, it was evident that estimation passed the Sargan's test for validity of instrumental variables at 5% significance level. The p-values of the Sargan's test was 0.2308, implying that the null hypothesis of valid instruments failed to be rejected in the estimation.

b) Normality Test

For the normal distribution there should a symmetric distribution with well-behaved tails whereby the skewness of 0.03 and kurtosis of 3 is required. In this study, the normality test was conducted on the regression residuals and the skewness and kurtosis were observed. The null hypothesis for the normality test was that the data was normally distributed. The findings of normality test are presented in table 3.2.

Table 3.2: Jarque-Bera Test for Normality

	Observed	Bootstrap			Normal-based	
	Coef.	Std. Err.	Z	P > z	[95% Conf. Interval]	
Skewness	-0.0088	0.0047	-1.89	0.059	-0.018	0.000
Kurtosis	-0.0002	0.0002	-1.54	0.123	-0.001	0.000
Joint test for Normality one: chi2(2) = 5.96						Prob > chi2 = 0.0508

Source: Author (2018)

The findings indicated that the variables did not violate the normality assumption, p-value > 0.05, skewness p-value = 0.059, kurtosis p-value = 0.123.

c) Test of First Order Autocorrelation

Wooldridge test was used to test for first order autocorrelation for the panel data. The result of autocorrelation is presented in table 3.3.

Table 3.3: Wooldridge Test for Presence of First-Order Autocorrelation

Variable	F	Prob> F
LgrealGDP	72.351	0.0135
RER	268.105	0.0001
Openness	379.187	0.0026
LgPD	126.197	0.0004
LgFD	-	-
IR	-	-
Overall	46.597	0.0208

Source: Author (2018)

The findings show that all the p-values for all the independent variables were less than 0.05 indicating that the null hypothesis was not rejected and the conclusion was that there was no first order autocorrelation among the variables. The overall F-statistic is 46.597, p-value = 0.0208. This meant that the variables were subjected to filtering using the BK filter in order to remove serial autocorrelation. The first differences of the variables were also used in model generation to remove serial autocorrelation

d) Over-Identification Test and Heteroskedasticity Test

The null hypothesis for over-identification is that the over-identification restrictions, that is, existence of mis-specifications, was valid.

H_0: Over-identification restrictions were valid (existence of mis- specification)

H_1: Over-identification restrictions were not valid (no mis-specification)

The Hansen-Sargan test for over-identification was carried out and the results are depicted in table 3.4.

Table 3.4: Sargan Test of Over-Identifying Restrictions and Heteroskedasticity Test

Wald chi2	81.520	
Sig.	0.000	
chi2	115.3275	
Sig.	0.2308	
Heteroskedasticity test	**LR chi2**	**P**
RER	445.01	0.000
Openness	427.84	0.000
LgPD	451.62	0.000
LgFD	20.39	0.0001
IR	188.54	0.000

Source: Author (2018)

The results indicated a weak evidence in support of the null hypothesis, that is, Sargan test chi2 = 115.3275, p > 0.05. This implied that the null hypothesis was not significant meaning that the null hypothesis was rejected. The alternative hypothesis was not rejected indicating that over-identification restrictions were not valid and hence no mis-specification in the model. In essence, this indicated that the model could be utilized in analyzing the synchronization of the variables in the model within the EAC countries. The results confirmed Sargan test of asymptotic chi-squared distribution that there existed homoscedastic error term in the model which was upheld by Arellano and Bond

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(1991) who showed that the one-step Sargan test rejected the null hypothesis test in the absence of heteroskedasticity. Assessment of heteroskedasticity revealed absence of heteroskedasticity for all the independent variables which was confirmed by the rejection in the Sargan test.

e) Multicollinearity Test

The VIF values higher than 10 indicate that there is multicollinearity, tolerance values of less than 0.1 depict the presence of multicollinearity. Test of multicollinearity using VIF is presented in table 3.5.

Table 3.5: Test of Collinearity

Variable	VIF	1/VIF (Tolerance)
PD	3.67	0.272636
FD	2.56	0.390872
Openness	2.17	0.461097
IR	1.31	0.763879
RER	1.11	0.901212
Mean VIF	2.16	

Source: Author, 2018

The results indicated that the VIF values for all the variables were below 10. This implied that for all the independent variables, there was no presence of multicollinearity.

While VIF values higher than 10 indicate that there is multicollinearity, tolerance values of less than 0.1 depict the presence of multicollinearity. The findings revealed that the VIF values for all the variables were below 10. This meant that for all the independent variables, there was no presence of multicollinearity.

f) Cross-Sectional Dependence (CD Test)

The CD test is presented in Table 3.6.

Table 3.6: Pesaran CD Test

Variable	CD-test	p-value	average joint T	mean Ï	mean abs(Ï)	
lgrealGDP	3.857	0.000	30.33	0.12	0.12	7 combinations of panel units ignored (insufficient joint observations).
RER	22.726	0.000	68.00	0.87	0.87	
Openness	2.644	0.008	30.33	0.08	0.11	7 combinations of panel units ignored (insufficient joint observations).
LgPD	-0.964	0.335	64.40	-0.04	0.55	
lgFD	.	.	.	0.00	0.00	10 combinations of panel units ignored (insufficient joint observations).
IR	4.325	0.000	16.20	0.34	0.39	

Notes: Under the null hypothesis of cross-section independence, CD ~ N(0,1)
P-values close to zero indicate data are correlated across panel groups.
Source: Author (2018)

The results of the CD tests indicated that real GDP, RER, openness and IR are highly dependent across countries. Note that there was a maximum of 10 combinations of 3 countries each in the East African Community. In this case, with regard to the real GDP 7 combinations are ignored and only three are considered based on sufficient joint observations. The null hypothesis of cross-section independence can be clearly rejected by a value of 3.857 for real GDP ($p = 0.000$), 22.726 for real exchange rates ($p = 0.000$), 2.644 for degree of openness ($p = 0.008$) and 4.325 for inflation rates ($p = 0.000$). But it is not rejected for public debt, -0.964 ($p = 0.335$). This is also the same case with fiscal deficit. This indicates that a monetary union can only be formed basing on the amount of public debt and fiscal deficit.

g) Correlation of Disturbances

The correlation coefficient can inform us whether currency union is possible or not; the more symmetric as indicated by positive correlations, the more feasible it becomes for a group of countries to establish a monetary union (Kandil & Trabelsi, 2010). Cross-sectional correlations between the countries enable determination on whether their combined monetary union would result in a significant relationship between the countries. Table 3.7 to table 3.9 reports the correlation coefficients among the East African countries.

The results in Table 3.7 display EAC monetary shocks for the period of 200Q1-2016Q4.

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Table 3.7: Correlations of Monetary Shocks (RER), 2000 Q1-2016Q4

	Burundi	Kenya	Rwanda	Tanzania	Uganda
Burundi	1	0	0	0	0
Kenya	0.716754	1	0	0	0
Rwanda	0.950296	0.741174	1	0	0
Tanzania	0.925708	0.80586	0.949138	1	0
Uganda	0.868918	0.92927	0.882643	0.945413	1

Source: Author (2018)

The results showed that all the correlation coefficients of EAC monetary shocks were positive and high whereby the highest three correlation coefficients found were Rwanda-Burundi (0.950296), Tanzania-Rwanda (0.949138) and Uganda-Tanzania (0.945413). The positive correlation coefficients denoted symmetric monetary shocks existed in EAC countries during the period under study. This implied that the more symmetric the monetary shocks, the more possible it became for a group of countries to establish a monetary union (Alturki, 2007). Therefore, according to the full sample period of 2000Q1-2016Q4, EAC countries revealed formidable evidence of convergence of monetary shock, which would decide the feasibility of a monetary union among partners of EAC. The correlation coefficient results for EAC public debt is presented in table 3.8.

Table 3.8: Correlations of Public Debt, 2000Q1-2016Q4

	Burundi	Kenya	Rwanda	Tanzania	Uganda
Burundi	1	0	0	0	0
Kenya	0.72973	1	0	0	0
Rwanda	-0.60566	-0.53695	1	0	0
Tanzania	-0.16846	0.196928	0.528848	1	0
Uganda	-0.78376	-0.87611	0.888951	0.208116	1

Source: Author (2018)

The results indicated that half of correlation coefficients of EAC public debt were positive with the highest three correlation coefficients being Uganda-Rwanda (0.888951) ,Kenya-Burundi (0.72973) and (0.528848). The other half of the correlation coefficients were negative, including Uganda-Kenya (-0.87611), Uganda-Burundi (-0.78376) and Rwanda-Burundi (-0.60566) .The correlations of Rwanda and Uganda in public debt were negatively correlated with the Burundi and Kenya countries reflecting asymmetry of public debt disturbances in these two countries. Tanzania also showed a negative correlation with Burundi. The positive correlation coefficients indicated symmetric public debts while negative correlations exhibited asymmetric public debts among the EAC countries. The results indicated that there was no strong evidence of convergence of public debt among the EAC countries. This implied that the decision for the feasibility of a monetary union among partners of EAC was not achievable. Correlation coefficients for inflation rate is presented in table 3.9.

Table 3.9: Correlations of Inflation Rate, 2000Q1-2016Q4

	Burundi	Kenya	Rwanda	Tanzania	Uganda
Burundi	1	0	0	0	0
Kenya	0.415266	1	0	0	0
Rwanda	0.516368	0.608306	1	0	0
Tanzania	0.710887	0.342499	0.294991	1	0
Uganda	0.310449	-0.248180	-0.02901	0.463702	1

Source: Author (2018)

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Table 3.10: System GMM estimation

	GMM			Ivregress_GMM			Arellano-Bond		
	Betas	SE	P	Betas	SE	P	Betas	SE	P
_cons				869000000*	416000000	0.001	9.883784*	1.676	0.000
Independent Variables									
L1.realGDP				0.6802264*	0.14	0.000	0.5347089*	0.078	0.000
RER				-230533.4*	153321.80	0.004	0.0003692*	0.000	0.000
IR				-19300000	15300000	0.169			
FD				-0.05	0.13	0.674			
PD				0.62	0.51	0.250			
Openness				256000000	209000000	0.201	-0.1184145*	0.048	0.000
Instrumental Variables									
α_0	869000000*	263000000	0.001						
α_1	0.6802264*	0.08	0.000						
α_2	(230533.4)*	80839.86	0.004						
α_3	256000000	201000000	0.202						
α_4	0.62	0.53	0.248						
α_5	-0.05	0.12	0.671						
α_6	-19300000	14000000	0.166						
Model Diagnostics									
R-square				0.9089					
Wald chi2				385.67			81.520		
Sig.				0.000			0.000		
Sargan test of over-identifying restrictions									
chi2							115.3275		
Sig.							0.2308		
* Indicates significant level at the 5 %									

Source: Author (2018)

The results showed that most of correlation coefficients of EAC inflation rate were positive whereas only two correlated negatively, that is, Uganda-Kenya (0.248180) and Uganda-Rwanda (0.02901) though low.

This implied that EAC countries portrayed evidence of convergence of inflation rate indicating possibility of a monetary union among partners of EAC.

h) System Generalized Method of Moments Estimation Based on the model specification given as

$$Y_{ijt} = \alpha_0 + \alpha_1 Y_{ij(t-1)} + \alpha_2 RER_{ijt} + \alpha_3 Infl_{ijt} + \alpha_4 Fiscal_{ijt} + \alpha_5 Publdt_{ijt} + \alpha_6 Open_{ijt} + \varepsilon_{ij,t} \quad (3.1)$$

The results for the system GMM estimation is shown in table 3.10.

From the findings, the marginal effect on the lagged real GDP (α_1) result in 0.68 units increase in the real GDP. In addition, the findings on the second estimated sample moment indicated that a marginal unit increase in the real exchange rates among the five countries results in a reduction in their combined real

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GDP by 230533.4 units as depicted by α_2 at 5% significance level. This indicated that there was convergence in the real exchange rate while on the other hand, there was no convergence on the degree of openness, PD, FD and IR. This meant that with regard to inflation rate, fiscal deficit, public debt and degree of openness, the five countries were not convergent.

The second model involves the instrumental variable regression based on the GMM model and the findings showed that the findings are similar to the estimated moments in the GMM model with the only difference in the estimated standard errors which are slightly higher. The value of the R-squared was 0.9089 indicated that 90.89 percent of the variation in the real GDP were accounted for by the model parameters. This implied that the hypothesis stating that there was no symmetry of monetary shocks among the members of the East African Community was rejected since there was convergence of the real exchange rates. However, the hypotheses stating that there was no parity with regard to inflation rates, fiscal deficit, public debt and degree of openness were not rejected. Further, the results indicated that there was no convergence of the fiscal deficit between East African Community hence the null hypothesis was not rejected.

Linear dynamic panel-data models include p-lags of the dependent variable as covariates and contain unobserved panel-level effects, fixed or random. By construction, the unobserved panel-level effects were correlated with the lagged dependent variables, making standard estimators inconsistent. Arellano and Bond (1991) derived a consistent GMM estimator for the parameters of this model. The coefficients standard errors in this case were expected to be different because considering the homoscedastic case. Although the moment conditions used first-differenced errors, this model estimated the coefficients of the level model and reports them accordingly. The findings showed that the lagged real GDP, real exchange rate and the degree of openness have significant effects on the real GDP.

Azil and Lee (2010) posited that OCA in East Asia indicated that the overall effect of trade on business cycle synchronization was found to be positive, implying that increased business activities could result in greatly harmonized business loops. This remained true even though increased trade integration results in more specialized economies and less synchronized business cycles as a consequence.

IV. Conclusion and Policy Implication

The results obtained using the GMM Approach indicated that the EAC countries could only converge with regard to real exchange rates and openness. This meant that the five EAC Countries had achieved the macroeconomic convergence for real exchange rate and openness. Macroeconomic variables including inflation rate, fiscal deficit and public debt still need to be worked on by the five EAC countries in order to achieve the agreed levels as per the treaty entered by the five EAC countries. Application of GMM model, indicated that there was a unit increase in the RER among the five countries resulting in a reduction in their combined real GDP by 230,533.4 units at 5% level of significance. This implied that a monetary union was feasible based on the RER.

The empirical findings of this study could provide a significant contribution and information to the policy makers who have been working towards the realization of the EAC monetary union. Evidence from the results, the formation of a monetary union by the various combinations of EAC countries existed but the impact on trade was negative. This was an indication that the five EAC countries should concentrate in adopting the macroeconomic convergence criteria in which they had agreed on in Kampala, Uganda on 30th day of November 2013 as per EAC (2013). The macroeconomic asymmetric shocks, that is, real GDP, inflation rate, fiscal deficit and public debts prevailing in the EAC could be lessened by monitoring and ensuring that they achieve the minimal annual macroeconomic indicative convergence criteria.

The EAC countries could still pursue reduction of the divergence of the macroeconomic variables since there was a pointer that there was a possibility of formation of monetary union in the EAC region. Strengthening the cooperation in the monetary policy in order to achieve macroeconomic symmetric shocks as well as synchronized of business cycle could be followed as per the treaty agreement. Policy makers should ponder adapting a harmonized policy as regards to the financial markets which could help to minimize the macro-economic disharmonies existing among the EAC member states.

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