Full Length Research Paper

Monetary union for the development process in the East African community: Business cycle synchronization approach

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This paper empirically examines the suitability of monetary union in East African community members namely, Burundi, Kenya, Rwanda, Tanzania and Uganda, on the basis of business cycle synchronization. This research considers annual GDP (gross domestic product) data from IMF (international monetary fund) for the period of 1980 to 2010. In order to extract the business cycles and trends, the study uses HP (Hodrick-Prescott) and the BP (band pass) filters. After identifying the cycles and trends of the business cycle, the study considers cross country correlation analysis and analysis of variance technique to examine whether EAC (East African community) countries are characterized by synchronized business cycles or not. The results show that four EAC countries (Burundi, Kenya, Tanzania and Uganda) among five countries are having similar pattern of business cycle and trend from the last ten years of the formation of the EAC. The research concludes that these countries, except Rwanda, do not differ significantly in transitory or cycle components but do differ in permanent components especially in growth trend.

Key words: Business cycle synchronization, optimum currency area, East African community, monetary union, development.

INTRODUCTION

The criteria of collectivism and unity have always been considered as one of the strength in the discourses of development that either considered economic or social development (Alam, 2009a; Alam et al., 2009b). Independence of a state always does not necessarily reflect a division or dispersion of the community. Therefore, regional union for the development and cooperation has played a critical role towards development, while many regions are struggling to be independent, thinking a microeconomic perspective (Bénassy-Quéré and Coupet,

2005) when many regions, having same culture, attitude and norms are trying to be in consensus of forming monetary union in order to be a macro voice of development (Cooper, 2000; Jabko, 1999). Considering these views, European Union (EU) was formed, increase success of EU shows a way that testify how unity, harmony, team work and team spirit can play a rigorous role for the development.

Later, EU realized the need of a common currency to become a dominant voice in world economy. Due to bilateral, multilateral or international business, currency exchange and its impact towards the business have been huge (Baldwin and Di Nino, 2006). Moreover, one currency used by many people, strengthen business community and reduces the unnecessary currency inflation and some other negative impacts. Moreover, it

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provides a wider response and swift service for the citizens to work faster in the business and daily life at the age of globalization.

Keeping this view, EU started a monetary union using same currency which is Euro. While the education, culture, tradition and other social gaps amongst different countries of EU are very narrow, it still took a long journey to adopt a common currency. Moreover, since a national currency is in the market, a slow and steady progression of a common monetary union currency will progress rationally and logically ensuring its sustainability (Jabko, 1999; Eichengreen et al., 1990).

Africa is a region which has a number of similarity and disparity with EU. However, it has its own merits and demerits in many ways. Thus, a direct currency union model (monetary union model) borrowed from other context may not work in Africa due to its political, social, educational, ideological, cultural and other understanding gaps (Masson and Pattillo, 2004). Considering these point of views, the aim of this paper is to assess the economic feasibility of the proposed Monetary Union in the EAC by examining the synchronization of business cycles (dynamics of trends and cycles).

In order to execute this argument, the research questions are outlined and answered further. In the process of finding the answers, a major research method of business cycle synchronization has been adopted that will be discussed. Conclusion and suggestion of this paper will be followed after the discussion supplemented through secondary literature.

Research questions

The focus of this study is to understand the linkage between common monetary policy and its resulting developmental output. For this purpose, the study considers the five East African countries as a case. In this front, given the importance on the argument discussed earlier, the research questions of this study are as follows:

i. How do the business cycles and trends of EAC countries behave?
ii. How significant are the mean differences between business cycles of EAC member countries?
iii. What are the shares and trends of trade between the EAC countries?
iv. How can the proposed monetary union benefit from the development of the east African community?

Though the independent monetary functions are not capable enough to bring development in EAC countries, this study therefore purposively exposes the importance and contribution of common monetary policy adaptation which may persuade that development. In this context, answering the aforementioned questions will help to understand whether a monetary union for the EAC countries can be feasible or not.

LITERATURE REVIEW

Discussions on the following sub-topics: the role of monetary functions in business, the role of monetary functions for human being, the preface of introducing monetary union, the advantages of monetary union, and the disadvantages of monetary union are presented here. Before exploring the sub-topics mentioned earlier, let us discuss the concept of economic development.

Concept of economic development

Primarily, the economists (for example, Bernstein, Shultz, Psacharapolous) view development in terms of the nation's relative prosperity, which is measured by the gross national product (GNP), as highlighted by Alam et al. (2009b) and Rabby et al. (2011). However, there is a concern that greater income does not guarantee greater buying power, more choices or better quality of life. This is partly due to globalization and free economic trade that made it challenging to maintain a reasonable inflation rate. An interesting point is noted by Alam (2009a, b) who states that if there is an exceptionally high gap existing amongst the value of GNI (gross national income) and GNP and GDP (gross national product and gross domestic income), national development will not sustain or would halt the development ultimately for two reasons:

i. If the value of GNI is enormously lower than the value of GNP and GDP, people of the producing nations cannot survive since a higher cost has already been paid off for the GDP and GNP.
ii. If the value of GNI is extremely higher than the value of GDP and GNP, the competitive nation will take the advantages supplying the desired products to the international community once they find out that a specific producing country sells a particular product at a higher cost to the other nations. This is easier to find out as the recent explosion of IT and ICT become available to all.

A further point was raised if a number of nation increases their GDP, GNP and GNI with the help of importing raw materials and other inevitable supports needed in the 21st century (such as, internet, global transit and protocol) from one specific region or nation, it would not help them greatly as it will provide compound escalating benefits to that specific region or nation. Therefore, on balance, those countries will face gruelling challenges on bilateral and multilateral business competition due to shortage and low value of foreign currency. This situation would be graver with more globalisation and internationalization.

More importantly, growth in economy without development in politics and society may lead to corruption caused by lack of transparency, maturity of the society and participation of the individuals within a nation (Alam, 2009b). Development in politics includes separation of power among the executive, legislature, and judiciary,

judiciaries' transparency, free and fair election, etc. Development in society includes maturity of the society wanting transparency, fairness, security, knowledge, freedom of choice and participation in the decision making for the society. The concerns from all these aspects have led to the emergence of another school of thought, that is, the sociologists' perspective.

The role of monetary functions in business

Monetary policy consists of the decisions and actions taken by the government to affect the supply of money and credit within a jurisdiction. Monetary policy has two basic goals: promoting the highest sustainable levels of economic output and employment, and promoting stable prices. Monetary policy is also used as a means by which government may respond to shocks to its economy. A stable money supply plays a crucial role in economic growth. The monetary authority may expand or contract the money supply in order to accommodate shocks. For example, if the supply is too large, inflation results. And if the supply is insufficient, it makes it more difficult for consumers and firms to obtain credit to finance large purchases and business expansions. Whether or not monetary policy has real effects on the domestic economy has been a matter of theoretical and empirical debate among economists (Martin, 1999).

The role of monetary functions for human being

It is argued that monetary policy is a powerful tool for affecting wealth accumulation, and has real effects on the economic system. Monetary policy is important for economic growth, as well as for domestic stabilization policy (Martin, 1999). Monetary policy can facilitate growth by pursuing policies conductive to increase production and real wealth; thus, this economic growth is associated with a more rapid reduction in poverty (Dollar and Kraay, 2002). Monetary policy can be used as a tool for stabilizing the financial system and unemployment rate; this would decrease the burden of debt and the poverty level (Martin, 1999).

The preface of introducing monetary union

Monetary union is the 5th stage of integration, thus, a region should have to fulfil the preceding stages of integration (African Development Bank, 2010). The following are the steps of regional integration arranged chronologically: preferential trade area, free trade area, customs union, common market, then monetary union and lastly political union are the ultimate stage of integration. Feasibility of monetary union is discussed at length in the literature of optimum currency theory (Mundell, 1961;

McKinnon, 1963; Kenen, 1969; Tavlas, 1993). The criteria are factor mobility (Mundell, 1961), trade integration (McKinnon, 1963), and a similar regional production pattern (Kenen, 1969). Some of the important conditions that would make possible an OCA (optimum currency area) are (i) a large market size and a high degree of openness in trade, (ii) a high degree of intra-zone trade, and (iii) similarities in business cycles and shocks (Kwack, 2004).

The advantages of monetary union

The adoption of a common currency leads to an increase in the number of economic agents using the currency as a medium of exchange. This eliminates the need for exchanging one currency to the other currencies in the union. Consequently, it reduces transaction costs and increases the transparency of prices (Kwack, 2004). This benefits consumers and raises the volume of trade in goods and services. Empirical studies confirm that a common currency zone saves transaction costs and promotes intra-zone trade. For example, the Commission of the European Community estimated savings of about 0.5% of GDP in exchange transaction costs for the Community as a whole (Artis, 1991). Glick and Rose (2002) states "a pair of countries that starts to use a common currency experiences a near doubling in bilateral trade." On the other hand, it reduces seigniorage revenues created from issuing the currency by the central bank of a member country. The reduction in these revenues is usually expected to be smaller than the benefits generated from its trade creation effects (Kwack, 2004).

The disadvantages of monetary union

Some of the costs faced by the countries members of a currency union are: (i) loss of sovereignty of monetary policy, which might be a problem when fighting inflation or recession; (ii) loss of control over the foreign exchange value of a national currency, which will eliminate the opportunity to smoothly adjust domestic policies in case of crises (Martin, 1999).

Exchange rates may be useful instrument for countries to affect their balance on current account (Destler and Henning, 1989); (iii) adjustment problems for the average citizen to the new the currency (coins and notes) with different denominations as compared to the old one; (iv) loss of fiscal policy, fiscal policy may be useful for collecting revenue, distribute income and finance government purchases; these policies will encounter limitations if a monetary constitution restricts fiscal policy (Martin, 1999).

RESEARCH DESIGN

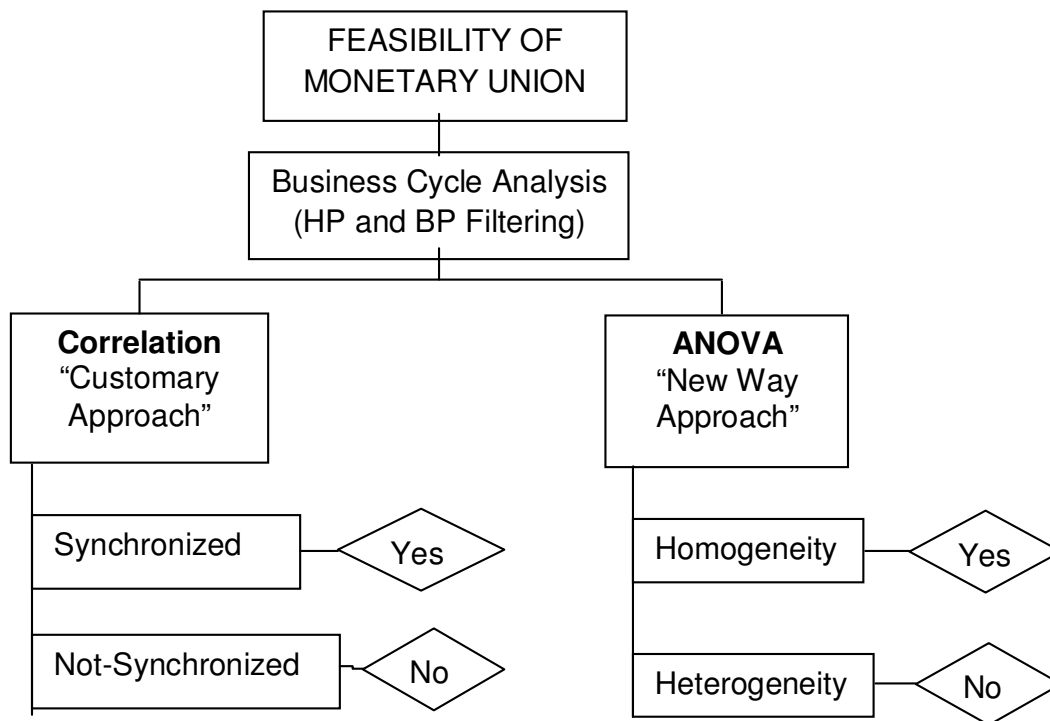Figure 1 provides the framework of analyzing the feasibility of

Figure 1. Analytical framework of the study.

monetary union in EAC. In order to extract the business cycles, the study uses HP and BP filters. After extracting the trends and cycles, the study uses two alternative approaches of analyzing the feasibility of monetary union in a region. The first approach is 'simple correlation analysis' and the second approach is one-way ANOVA (analysis of variance) analysis. If the cycles and trends between countries are positively correlated, the less likely they are to lose by forming a currency area. Also, for the ANOVA analysis, if the cycles between countries are homogenous, then countries in that region can form monetary union.

Methodological discourse

Probable methods

There are several key methodologies for testing the feasibility of monetary union. Some of the popular methods are as follows: (i) analysis of economic shocks using SVAR (structural vector auto-regression), (ii) analysis of synchronization of business cycle, (iii) G-PPP (generalized purchasing power parity) analysis, (iv) trade effects (gravity model), and (v) DSGE (dynamic stochastic general equilibrium modelling), etc.

Most of these methodologies have not remained without criticism, for example SVAR decomposition of the Blanchard and Quah technique does not necessarily identify purely stochastic disturbances (Zhang, 2002). Limitation for the generalized-PPP model is that movements in the macroeconomic variables of G-PPP do not distinguish disturbances from responses (Buigut, 2005). For the gravity model, gravity model is used to predict the trade effects of monetary and customs union, but theoretical justifications of the model are the subject of some dispute (Adams, 2005). Dynamic stochastic general equilibrium modelling (DSGE) appears to be a relatively appealing methodology and have been applied on quite a wide basis. However, DSGE analysis is a highly complicated process,

reliant on detailed economic data which makes it currently unsuitable for its application to Africa where such data is scarce. Thus, DSGE model analysis of monetary union in Africa is beyond capacity of this paper. Thus, business cycle synchronization analysis had become the widely used method of analysing monetary unions, because of its easiness to get the data it requires.

Adaptation of current method

Some of the aforementioned techniques of analyzing monetary union have drawbacks and do not provide clear conclusion of whether a successful monetary union is feasible or not. This method of business cycle synchronization analysis is widely used in the OCA literature as a tool to determine whether future members of a monetary union face correlated trend and cyclical components of their macroeconomic indicators such as GDP.

OCA theory, which is a tool for analyzing viability of monetary union in a region, argues that the costs of using a common currency depend on how symmetrical the economies are in terms of business cycles (Alturki, 2007). If the cyclical fluctuations of two economies present opposite phases, then the cost of their participation would be much higher in comparison to the cost of participation; but, if both economies experience the same phase the cost of their participation is outweighed by the benefits induced by the common currency (Filis et al., 2010).

Significance of current method

The theory of OCA had stressed the significance of business cycle synchronization analysis for the future members in a monetary union; because it gives a clear understanding if future members of a currency union would be able to make a monetary union or not. This method assesses the similarity of a broad range of OCA

Table 1. Correlation matrix of EAC countries permanent component (1980 to 2010).

	Burundi	Kenya	Rwanda	Tanzania	Uganda
Burundi	1.000000				
Kenya	0.834070	1.000000			
Rwanda	0.656778	0.817003	1.000000		
Tanzania	0.772366	0.985161	0.890077	1.000000	
Uganda	0.733642	0.982154	0.867935	0.997003	1.000000

properties within a group of countries; it finds out subsets of countries that share similar characteristics and may therefore be more suitable for monetary union (Alturkey, 2007). This method can assess the correlation of cycles and trends between the countries and regions (Fidrmuc and Korhonen, 2006; Shin and Wang, 2003). This method is also instrumental to understanding the effects of international trade on the countries which intend to form a single currency area (Gruben et al., 2002; Kose et al., 2003). Unlike other methods of analyzing monetary unions, this method can accommodate the data set which is easy to get and easy to analyze, and this is why, business cycle synchronization analysis is a widely used method of studying monetary unions.

Constrains of adopting the current method

Instead of using gross domestic product, it would be better to use industrial production index (IPI) and unemployment rate which are common business cycle indicators. As Artis et al. (2004) and Camacho et al. (2006) note, industrial production indexes display more cyclical sensitivity than GDP estimates and hence may be more informative for monitoring business cycle fluctuations. But the problem is that data availability of industrial production indexes for the East African Countries is not possible.

Constrains of its influence to findings

Although business cycle synchronization is necessary, it is not sufficient for a successful monetary union. Other factors such as trade, financial and political may be just as important. The main constrain on the findings are the length and frequency of the data; bigger sample size and frequent data series such as quarterly data may be more desirable to produce a better outcome. Annual data may not pick up some short run interaction that occurs within a year.

RESULTS

Synchronization of business cycles is a precondition for forming monetary union in a region. Countries with highly correlated business cycles tend to have higher propensity to join in a monetary union. Increased intra-regional trade in currency area would increase the synchronization of the business cycles and shocks.

Dynamics of permanent and transitory components in EAC

Table 1 shows simple correlation matrix of EAC countries' permanent component. The idea is, the higher

the synchronization of business cycles correlation coefficient, the greater the degree of synchronization. Table 1 shows very high correlation coefficients of the permanent components of EAC countries' growth rates. With only one exception, the correlation coefficients range from 73% (Burundi-Uganda) to 99% (Tanzania-Uganda). This evidence supports the conclusion that EAC countries experience similar patterns of growth over that period considered (1980 to 2010).

To investigate whether the degree of business cycle synchronization has increased after the EAC establishment in 2000, we consider data from the years 2001 to 2010 (Table 2). During this period, the correlation coefficient of the permanent component is higher than the full data set of 1980 to 2010. Thus, we can say, in the last decade (2001 to 2010), EAC countries had experienced similar pattern of growth rate.

Table 3 shows correlation coefficients of the cycle components of EAC countries' growth rates. The table shows more positive correlation coefficients of the EAC temporary components. Temporary components of Rwanda and Burundi are negatively correlated with Ugandan temporary component. The rest of the correlation coefficients show positive relationship among their temporary components. To take a closer look at the results of sample period of post EAC formation[1] (2001 to2010), we consider data from the years 2001 to 2010. As we see from Table 4, correlation coefficient of EAC temporary (cycle)component had improved since it has higher correlation coefficient than the full data set. As Table 4 shows, correlation coefficient of the GDP temporary component in this sub sample ranges from 0.41% (Kenya-Burundi) to 0.70% (Uganda-Burundi). But for the sample period of 2001 to 2010, Rwandan temporary component of GDP got negative correlation with all other EAC countries; this can be interpreted as that Rwandan temporary shocks are dissimilar with the rest of the region. Thus, the costs of Rwandan participation in EAC monetary union would be higher than the benefits of joining EAC currency union.

On the other hand, we had also applied BP filter of the Baxter and King to enhance the analysis of EAC

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[1] The East African Community was established in 2000, and since then they had made some progress toward policy harmonization, thus, we need to test whether they had made improvement in Business Cycle Synchronization (BCS) after that period.

Table 2. Correlation matrix of EAC countries permanent component (2001 to 2010).

	Burundi	Kenya	Rwanda	Tanzania	Uganda
Burundi	1.000000				
Kenya	0.996013	1.000000			
Rwanda	0.992091	0.999330	1.000000		
Tanzania	0.994364	0.999853	0.999807	1.000000	
Uganda	0.993321	0.999639	0.999939	0.999951	1.000000

Table 3. Correlation matrix of EAC countries cycles or irregular component (1980 to 2010).

	Burundi	Kenya	Rwanda	Tanzania	Uganda
Burundi	1.000000				
Kenya	0.325523	1.000000			
Rwanda	0.308366	0.164188	1.000000		
Tanzania	0.555251	0.711358	0.196737	1.000000	
Uganda	-0.461164	0.173362	-0.349380	-0.057127	1.000000

Table 4. Correlation matrix of EAC countries cycles or irregular component (2001 to 2010).

	Burundi	Kenya	Rwanda	Tanzania	Uganda
Burundi	1.000000				
Kenya	0.416211	1.000000			
Rwanda	-0.349135	-0.342805	1.000000		
Tanzania	0.499987	0.534468	-0.307762	1.000000	
Uganda	0.708651	0.546768	-0.040462	0.440760	1.000000

business cycles; and we compared them with the cycles identified by the HP filter. We found that both the two filters (HP and BP) show some similarities in the cycle and trend components of GDP; thus, to conserve space we limit our result only to the Hodrick Prescott results; the band pass results would be available upon request.

Test of permanent and transitory components in EAC

As suggested by Kenen (1969), an alternative method of analyzing synchronization of business cycle is the analysis of variance test. It will check the equality of means and variance of the permanent and transitory components between EAC countries. If results show no significant difference in means of the permanent and transitory components, then EAC countries are having similar business cycles and they can form monetary union.

Table 5 gives the summary of Levene's test of the EAC business cycle of the period 2005 to 2010[2]. As the table shows, the variances of both permanent and transitory components of the GDP of the five east African countries are identical. Thus, we can proceed to next step of the

analysis of variance analysis. Tables 6 and 7 provide the summary results of both the transitory component and the permanent component. Table 6, shows that the transitory component (cycle) of the EAC countries means are similar; in other words, EAC countries do not differ in their temporary component or cycles in this given sample period, thus, we can say EAC countries are having synchronized business cycles.

Table 7 presents the test of whether the permanent (trend) components of the EAC countries means are same or not; it shows that EAC member countries are having dissimilar mean as shown by significant p-value (0.000). Thus, we can conclude that EAC countries differ significantly in their growth path, as the analysis of variance test reveals.

Intra-EAC trade intensity

One of the main benefits generated from the monetary union is the reduction in transaction costs; the larger is the intra-regional trade among EAC members, the smaller the costs and larger the benefits of forming a currency union will be, ceteris paribus (AlKharofey and Alreshan, 2009). Table 8 shows that the intra-regional exports of EAC are not so big; as East African region absorbs 29% of Uganda's exports, with Kenya being the

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[2] This period of 2005 to 2010 is the period after EAC had made Custom Union and Common Market.

Table 5. Test of homogeneity of variances in business cycle of EAC 2005 to 2010.

Variable	Levene statistic		
	df	Value	p-value
Transitory components (cycle)	(4, 25)	1.578	0.211
Permanent components (trend)	(4, 25)	1.936	0.136

Table 6. ANOVA analysis for transitory components (cycle) in EAC 2005 to 2010.

Transitory components (cycle)			
EAC_cycle	SS	df	Chi-square
Between groups	0.000345	4	8.62E-05
Within groups	0.007006	25	0.00028
Total	0.007351	29	0.00025
ANOVA F-statistic	0.007351		
Sig. value	0.870		

Table 7. ANOVA analysis for permanent components (trend) in EAC 2005 to 2010.

Permanent components (trend)			
EAC_cycle	SS	df	Chi-square
Between groups	54.52625	4	13.63156
Within groups	0.322784	25	0.012911
Total	54.84904	29	1.891346
ANOVA F-statistic	1055.78		
Sig. value	0.000		

Table 8. Intra-EAC exports as share of total exports, 2009.

	Burundi (%)	Kenya (%)	Rwanda (%)	Tanzania (%)	Uganda (%)
Burundi	--	0.08	0.19	0.00	0.09
Kenya	1.53	--	9.29	25.20	25.87
Rwanda	0.35	7.06	--	0.06	0.39
Tanzania	0.85	2.57	2.71	--	2.81
Uganda	2.53	9.13	7.62	1.69	--
EAC	5	19	20	27	29

Source: Direction of trade statistics (DOTS) of IMF, 2010.

single most important destination for its goods. Tanzania is the second largest exporter within the region; 27% of the Tanzanian exports went to EAC member countries; Rwanda and Kenya are the third and fourth exporting 20 and 19% respectively.

On the other hand, Table 9 gives the share of intra-EAC imports of the year 2009. As shown in the table, Kenya is by far the largest importer within the region; 62% of the Kenyan imports are from the EAC countries mainly from Uganda (26%) and Tanzania (25%). Also, Uganda and Tanzania source a substantial portion of their imports from East African Community, especially from Kenya. Burundi imports are less dependent on the EAC member countries.

As Table 10 shows, the share of intra-EAC trade to the world trade is quite big, with a minimum of 7% to a maximum of 38%. Rwanda shows high intra-regional trade. Higher intra-trade indicates that potential gain from trade and establishment of common currency is possible. Endogeneity of OCA theory argues that highly intra-traded countries would become more integrated after forming a monetary union despite being unsatisfied with

Table 9. Intra-EAC imports as share of total imports, 2009.

	Burundi (%)	Kenya (%)	Rwanda (%)	Tanzania (%)	Uganda (%)
Burundi	--	1.54	0.16	0.85	1.75
Kenya	0.08	--	7.08	2.58	9.16
Rwanda	0.31	9.33	--	2.72	8.42
Tanzania	0.00	25.29	0.06	--	1.69
Uganda	0.05	25.96	0.15	2.82	--
EAC	0.44	62.12	7.45	8.97	21.02

Source: Direction of trade statistics (DOTS) of IMF, 2010.

Table 10. Percentage of intra-EAC trade to world trade.

Year	Burundi (%)	Kenya (%)	Rwanda (%)	Tanzania (%)	Uganda (%)
2000	15.03	11.16	26.00	8.15	19.25
2001	15.49	12.45	16.63	6.48	17.51
2002	25.36	12.56	32.50	5.84	26.26
2003	27.70	12.11	39.28	8.16	26.71
2004	26.71	11.73	33.15	7.62	18.84
2005	17.42	10.18	27.13	7.54	25.63
2006	13.59	8.94	27.44	7.38	16.78
2007	22.25	9.09	28.73	7.59	16.05
2008	20.01	9.25	38.37	7.11	13.57
2009	17.21	8.85	34.49	7.00	10.40

Source: Direction of trade statistics (DOTS) of IMF, 2010.

some of the OCA criteria.

Conclusion

This paper uses annual real GDP data of EAC member countries, namely, Burundi, Kenya, Rwanda, Tanzania and Uganda. Test of unit roots shows that data is stationary. The study of the business cycle synchronization using Hedrick-Prescott filter and the band pass filter gives new insights on the subject. Using correlation coefficient and analysis of variance procedure, it shows very high correlation coefficients of the permanent components of EAC countries' growth rates with only one exception between Burundi-Uganda, supporting evidence that EAC countries experience similar patterns of growth over that period considered.

Although our framework differs from the standard approach found in the literature, some of the results are in line with previous research. Bilateral trade and EAC membership have a positive effect. We think that the purposed framework unveils the short and medium term effects. On the other hand, share of intra-EAC imports shows that Kenya is by far the largest importer within the region; Uganda and Tanzania source a substantial portion of their imports from East African Community, especially from Kenya. Burundi imports are less dependent on the

EAC member countries. This gives us a different perspective of the financial mechanism. We confirm the finding that trade intensity affects business cycle synchronization.

BP filter enhance the analysis of EAC business cycles. After comparing them with the cycles identified by the HP filter we found that both filters show some similarities in the cycle and trend components of GDP. Test of analysis of variance show no significant difference of the permanent and transitory components, then EAC countries are having similar business cycles and they can form monetary union. Share of intra-EAC trade to the world trade is quite big, Rwanda shows high intra-regional trade. Higher intra-trade indicates potential gain from trade and establishment of common currency is possible. Endogeneity of OCA theory argues that highly intra-traded countries would become more integrated after forming a monetary union despite unsatisfied with some of the OCA criteria

One of the main questions in the empirical analysis of the business is the synchronization of business cycles; our findings confirm that both business cycles are dominated by the same frequencies. However, Rwandan component of GDP got negative correlation with all other EAC countries; this can be interpreted as those Rwandan temporary shocks are dissimilar with the rest of the region. Thus, the costs of Rwandan participation in EAC monetary union would be higher than the benefits of

joining EAC currency union.

Finally, our results suggest that the effect of trade on business cycle synchronization is robust for outlying observations, but the relationship between the correlation of business cycles and bilateral trade is not robust. Our results suggest that common monetary policy may not be equally good for all countries in the union, may have lost force due to the economic and monetary integration process.

RECOMMENDATIONS

Compared to EU, EAC have lower level of economic integration with respect to trade, financial and other factor flows. There are greater disparities in context of monetary growth rates, budget deficits, exchange-rate regimes, inflation rates, and balance of payments deficits EAC should implement a monetary policy harmonisation programs that will lead to greater convergence.

EAC countries are small, relative to EU in terms of GDP, trade flows, and money supply there should be a common currency to avoid hassle of transaction time and cost for   intermediaries such as banks (or their informal equivalents).

We emphasize EAC countries should have a common currency that will facilitate trade and investment among the countries and will increases income growth by reducing transaction costs in cross-border business, also will remove volatility in exchange rates. Lower transaction costs (no market segmentation or no currency conversion costs) and less difficulty of completing international tran-sactions within the union, it would create and accumulate wealth. It will provide opportunity for inflation-prone countries to enjoy lower inflation strategies.

There will be adjustment problems for the average citizen to the new the currency (coins and notes) with different denominations as compared to the old one. In this situation, changes should be in phases.

Businesses would no longer have to pay hedging costs which they do today in order to insure themselves against the threat of currency fluctuations. Businesses, involved in commercial transactions in different member countries, would no longer have to face administrative costs of accounting for the changes of currencies, plus the time involved.

EAC countries are not significantly different in economic performances and they do not have significant cultural difference which would be an added advantage. Swahili and English are widely spoken in that region (for example Kenya, Uganda and Tanzania first national language is Swahili; for Burundi and Rwanda, it is second).

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