Macroeconomic Convergence in Southern Africa Development Community

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Abstract

Southern African Development Community (SADC) has set its member countries four macro-economic convergence targets (Rate of inflation, the ratio of the budget deficit to GDP, the ratio of public and publicly guaranteed debt to GDP taking into account the debt sustainability index, and the balance and structure of the current account) as outlined in Finance and Investment Protocol. These are benchmarks that are used to assess a trend towards more integration and unification of the region. The analysis also attempts to highlight some differences in some of the sub-groupings within SADC namely the Common Monetary Area (CMA) and the Southern African Customs Union (SACU). The paper found out that there is still policy divergence in the rest of SADC, and there is divergence in output. The contribution of this finding is that while acknowledging the importance of convergence as an integral part of regional integration, but highlights that such as attempt is likely to be undermined by lack of comprehensive undertaking of factors that drive growth in respective countries. Therefore divergence found in the countries is at best explained by differences in underlying disturbance factors. This indicates that while the countries may generally be stable due to the anchor role played by South Africa, the countries may not be highly integrated because of the underlying structural differences.

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Introduction

The debate around whether countries are converging towards each other has always been a regional integration issue. This is the case in Southern African Development Community (SADC), where South Africa is considered a high-growth and stable economy. In this context the central question is whether countries can minimize their output gap, in line with growth in South Africa.

It is acknowledged that there is no conclusive scientific explanation on the benefits or lack thereof in setting convergence performance indicators, especially on the poorer economies. Some authors go on to highlight that the strategy of macroeconomic convergence is not necessarily always a best policy, with particular reference to SADC (MacCarthy and du Plessis, 2001). On the same length other authors raise a concern that convergence tends to be emphasized at the expense of higher economic growth (Pesaran, 2007). While others (Kutan and Yigit, 2007) found out that economic integration has assisted many countries for long run catch up.

The paper uses the case of SADC and its sub-groupings CMA and SACU to assess economic convergence both at policy level and output level. South African rand is pegged at par in the rest of CMA members, and South Africa compensates them for loss of seigneorage, while the rest of the countries currencies floats freely with the South African rand. In the CMA the arrangement allows free capital flows among the countries. The sample period adopted in this study ranges from 1990 to 2006, and looks into the implications of existence of asymmetrical external shocks. In this paper convergence is to be understood as the ability to minimize diversion of income across countries.

The paper is divided into four sections namely: section one, which introduces the subject matter; section two, which discusses convergence as a concept and its application; section three looks at the possibility of convergence and divergence among SADC member countries; and section four concludes and outlines some policy implications.

Overview on Convergence

The development of SADC convergence seems to be based in structure to the framework that was developed for the European Union (ECA, 2006). The development of the Maastricht treaty that came into force in 1992 was to establish the stability pact, with emphasis on the economic and monetary union in Europe. This therefore involved taking the monetary policy sovereignty from individual country central banks to the European Central Bank (ECB), thus implying that countries only had independence on fiscal policy.

The establishment of the Maastricht treaty can be traced as far back as 1957, with the initiative of the treaty of Rome, drawn to establish a customs union (Rogers, 2006). The SADC initiative as a regional body on the one hand started in 1980 with governments of nine countries to form the then Southern African Development Coordinating Conference (SADCC). The intension of the formation of a regional cooperation was declared earlier in 1979. In 1992, SADCC transformed from a conference to a community and changed to Southern African Development Community (SADC). The timing of the transformation coincided with structural changes in the EU. The EU mission was achieved with the launch of the joint currency EURO in 1999. SADC on the other hand had established a similar strategy map to establish SADC free trade area by 2008, customs union by 2010 and establishment of a common market by 2015.

There are a number of researchers that hail the success of the European model, though there are concerns that price stability had been achieved at the expense of higher growth and reduction in unemployment (Soukiaziz and Castro, 2005, p.386; Pesaran,2007). This concern is likely to be mimicked in Southern Africa. Another concern is that the development of the EU model was based on policy convergence. Therefore the success of the EU model was at the back of a close homogeneity in the economies that started the pack, in particular the 1998 European Monetary Union signatories (11 countries) (Roger, 2006). The level of policy convergence at the SADC level does not seem to be as convincing as the European Monetary Union (EMU) because of the structurally diverse

economies, and the unlikelyness that most countries would at any time soon and sustainably meet the devised primary policy convergence indicators; (single digit inflation rate by 2008, less than 5 percent of budget deficit as a percentage of GDP by 2008, less than 60 percent of public debt as a percentage of GDP and less than 9 percent of GDP in current account deficit). The secondary indicator is the real GDP growth of 7 percent or more by the same target period. The paper next discusses the theoretical base for absolute and conditional convergence.

Convergence debate is based on the assumption that was set-off by the Solow model on conditional convergence, which states that countries will have different steady state income levels, but it is expected that poor countries will grow faster than richer countries. This debate was further affirmed by the findings of Dowrick and Ngunyen (1989) where convergence was confirmed among developed countries. This was supported by the concept of the convergence club. This led to a conclusion that convergence does not apply among the poorest of the world economies. It is however noted that Pesaran (2007) cautioned that the conclusion of the existence of a convergence club might be spurious results, reflecting inconsistency in model structure, choice of sample period and data generation problems.

Sachs and Warner (1995) summarized three dominant reasons offered in the literature for the absence of convergence. First, productive technology tends to dominate in the developed economy. Second, convergence holds among countries with sound human capital base and use of modern technology. Third, poor countries generally have low long-term potential. It is nonetheless noted that countries tend to grow faster when the gap between their current income and their own long-run potential is greater. These conclusions therefore do not aid to form an optimistic view to the potential of Southern Africa in the convergence paradigm. The conclusion of the role of technology is consistent with the findings in Goo and Park (2007) where it was found out that technology affects comparative advantage and has a tendency to increase economic growth.

Pritchett (1997) found that less developed countries do not seem to gain historically (catch-up) on the leading countries. This was in a sample of developing and developed countries sampled with data interpolated for the periods 1870-1960, 1960-1979 and 1980-1994. These were categorized as 17 advanced capitalist countries and 28 less developed countries. In another cross-sectional study, Sala-i-Martin (1996) used the concepts of α-convergence and β-convergence. The starting point of this debate was acknowledging that Maddison (1991) data on GDP for 13 rich countries starting in 1870 found convergence. When using the Summers-Heston data set for the period, which was considered comprehensive, in a sample of 110 countries, Sala-i-Martin concluded that world economies have diverged in the sense of α over the period 1960 to 1980. And further concluded that for the period of 30 years reviewed poor economies did not grow faster than the rich ones, thus the hypothesis of β -convergence did not hold either, and results yielded a negative speed of convergence at β = -0.004 (negative convergence or divergence) (S.E= 0.002) (Sala-i-martin, 1996:1025).

Siriopoulos and Asterou (1997) used a similar method, and used the concept of α -convergence and β -convergence for regions within Greece in the period 1961 to 1996, with regression estimates starting in 1971. The study concluded that the β -convergence coefficient had the expected sign, but was not statistically significant. This seemed to be in line with the Sala-i-martin finding on the convergence hypothesis of neo-classical growth models. Similar results are also obtained in Cho (1996) where the study uses the control variables in the regression; namely; the investment-GDP ratio and the population growth rate. The study found out that these variables were endogenous with respect to growth. Hence, the investment-GDP ratio rose, while population growth rates declined with income growth. The other similarity of this study with others referred to earlier, is the use of Summers-Heston data set. The vital point to note here is that sometimes relative prices vary substantially across countries. This therefore implies that measurement of rates of convergence might be biased when measured over longer time horizons.

Convergence Big Time or Divergence Big Time

The paper uses annual data for SADC countries for the period 1990 to 2006; in order to echo the political developments that started in 1990 in South Africa and the accession of Namibia to independence in early 1990s. South Africa is benchmarked as anchor state where all countries should emulate its growth pattern because majority has strong trade links with it. Data for all countries is first transformed into 1990 prices, then all other countries GDP per capita series are transformed into South African Rand using the PPP methodology. The data was later changed into indexes for analysis. The indices were obtained by deriving measures of relative price levels among countries and dividing by corresponding exchange rate and multiplying by 100.

It is therefore noted that *a priori* rest of SADC should grow at a faster rate to catch up with SA, the leader in this case. It is noted that though South Africa is a developing country it has high integration with international markets because of its developed stock exchange and high turnover in portfolio flows. This is the hypothesis of the convergence theory. This therefore further implies that if we use α -convergence and β –convergence, we expect the other CMA, SACU and rest of SADC countries (Lesotho, Swaziland, Namibia, Angola, Botswana, DRC, Malawi, Mauritius, Mozambique, Tanzania, Zambia and Zimbabwe) to grow faster than South Africa and the gap between them to be closing.

A close look at policy convergence among the CMA countries, Table 1, indicates that by 2006 they met the set primary targets on the four indicators, though all countries did not meet the secondary target. The non-performance of countries in the secondary criterion may be an indicator of the underlying structural factors that drive the growth of the respective countries.

Table 1: SADC Convergence Indicators among CMA countries

Country	Inflation Rate		Budget Deficit (-) / Surplus (+) as percentage of GDP		Public Debt as percentage of GDP		Current Account as percentage of GDP		Real Growth Rate	
	2005	2006	2005	2006	2005	2006	2005	2006	2005	2006
Lesotho	3.5	6	2	13.3	50.3	49.9	-6.8	4.3	4	6.2
South Africa	3.9	4.6	-0.8	0.04	36.6	33.3	-3.8	-6.4	5.1	5
Namibia	2.3	5.1	-1.1	2.1	33.6	31.4	7.1	18	4.2	4.6
Swaziland	4.8	5.3	-1.8	-2.1	16.9	17.1	0.26	1.8	2.3	2.8

The debate on output convergence is based on the neoclassical growth model, which assumes a Cobb-Douglas production function; $Y_{it} = K_{it}^{\alpha}(A_{it}L_{it})^{1-\alpha}$, with $0<\alpha<1$, where K_{it} is capital, L_{it} is the number of workers employed, and A_{it} is the level of technological progress. The paper uses the relative measure corresponding with an appropriate platform of which to base conclusions. These indicators measure output convergence where the countries are weighted by population through $P_{it}P_{jt}(y_{it} - y_{jt})$ between country i and j this implies that after the weighting the unit of observation translates into the impact on persons not countries. It is however cautioned that a conclusive statement cannot be made on the in-country income distribution.

Figure 1: CMA Population Weighted Coefficient of Variation
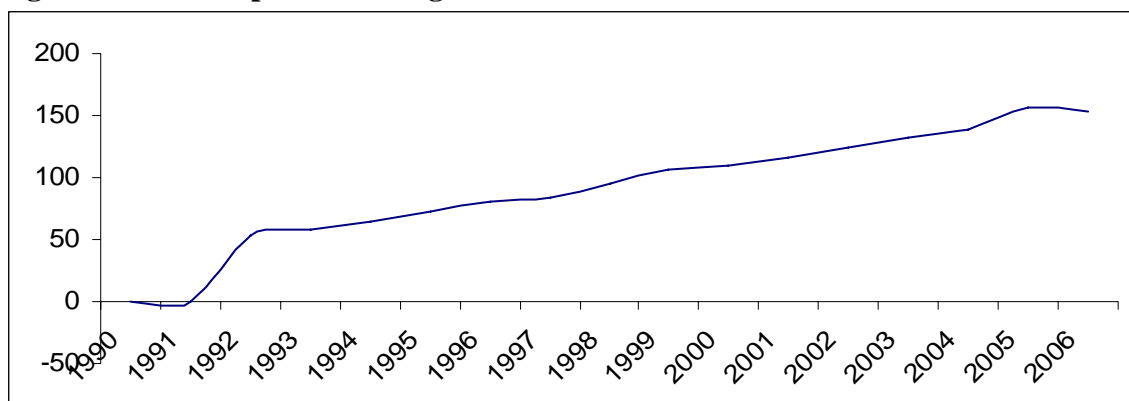
The variable on per capita standard deviations informs us about the β -convergence, and *a priori* is expected that if there is divergence big time the standard deviation will increase over time. Conversely, if there is convergence, the standard deviations will decrease over time. Figure 1 shows that inserting a trend line results in an overall increase in deviation indicating that while the policy variables of the CMA countries were stable as in Table 1, there is divergence in output.

The next question is whether CMA has similar underlying disturbances, and in this case we follow the variation of the approach used by Wang et al (2007). This is estimating a regression of the of the per capita data to extract the underlying shocks, then the residual is saved and regressed on its determinants to see if the iteration will revert to near singular matrix indicating a match of the disturbance among the sample period. The results showed that CMA as a group does not have outliers in that the normality test using the Jarque-Bera test returned 0.0330 indicating normality in changes of output. The correlation of the CMA underlying disturbance on the long run error term and when regressed on its determinants resulted in a correlation coefficient of 0.00195, thus indicating asymmetric shocks within the CMA as a group. If the correlation is positive and significant is considered to display symmetry in shocks, but when is negative and insignificant it implies asymmetry shock. This results are consistent with the findings of Wang et al (2007:31) where it was confirmed that CMA countries are subjected to asymmetric shocks as such their determinants of the underlying growth pattern may be different.

A similar test is undertaken for SACU countries and a correlation of 0.93107 is obtained, indicating that the underlying disturbances are similar; this is interesting given the results obtained under CMA. These results are also in agreement with Jenkins and Thomas (1996) where they found convergence in SACU, which is CMA plus Botswana and not in rest of SADC. The finding that SACU has symmetry shocks and not in CMA is explained by the volume of output integration between South Africa and Botswana, this may also be an explanation for the findings in Jenkins and Thomas, though in their study they fell short of testing the underlying disturbance. Further asymmetry test were obtained in the

case of rest of SADC with overall correlation of 0.085, the rate that is more optimistic than in the case of CMA but still insignificant. This may imply uneven distribution of capital formation of factors that determine its direction. This may also have implications of the size of CMA and rest of SADC, where bigger volume countries may have uniform exogenous shocks, thus resulting in higher correlation of their output. The obvious supply shock in this case can be international oil price and its supply constraints, while the domestic shocks mainly emanate from prudence in fiscal policy, which is very diverse among SADC countries. This is despite the picture depicted in Figure 2 below where it shows that in 2005 only two countries had had their budget deficit above the 5 percent of GDP benchmark, and in 2006 only one country was not conforming. The indicator was the best performance, but an explanation to this star performance in that majority of countries in SADC was mainly as a result of most countries being beneficiaries of debt relieve that hugely changed their fiscal outlook. This change may implies superficial improvement because it was not driven by any improvement in the management of the economy.

Figure 2: Status of Macroeconomic Convergence in 2005 and 2006
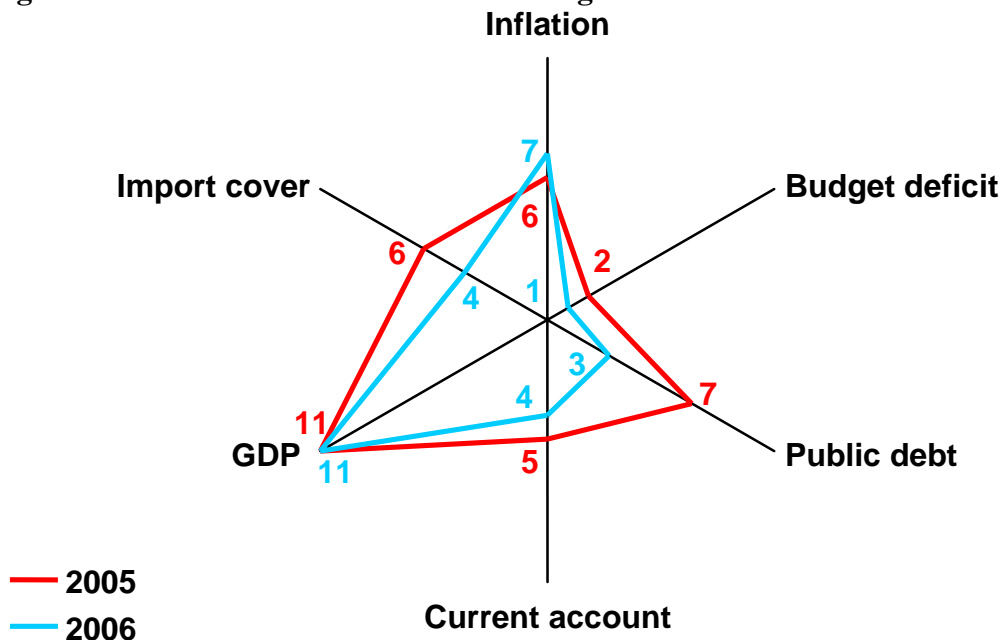
Note: Numbers shown indicate the number of countries not meeting the convergence target in the relevant area; closer to the origin is optimal
Sources: CCBG, 2007

Figure 2 above indicates the number of SADC members that did not meet the respective convergence goals in 2005 and 2006, respectively. It is noted that SADC members have achieved the target of public debt to less than 60 percent of GDP, reducing the budget deficit to less than 5 percent of GDP, reducing the current account deficit to less than 9 percent of GDP. Conversely, the number of SADC countries that did not meet the inflation criteria increased in 2006, and the number of countries that did not meet the growth criteria remained the same (CCBG, 2007:26). Figure 3 also indicates that on the relative level there is divergence in output. And the level of divergence was more pronounced in an absolute measure using standard deviation, than is the case in the coefficient of variation.

Figure 3: SADC Coefficient of Variation
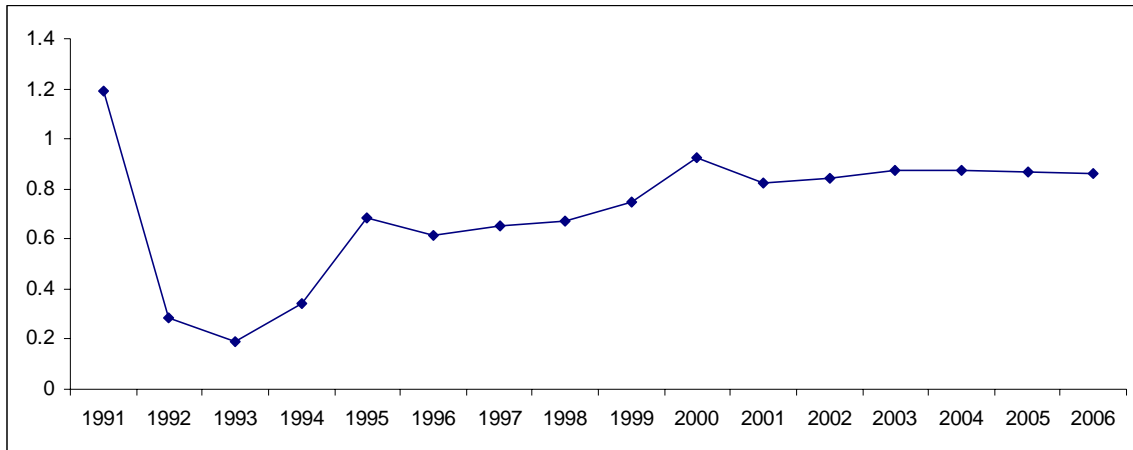
At this stage it is important to note that though there is divergence in output there was minimal divergence in the changes in the output. This seems to refute the widely used practice of estimations excluding Zimbabwe and Democratic Republic of Congo (DRC) in the sample regression. It was nonetheless found out that volatility in output changes was higher in DRC than in the case of Zimbabwe. Therefore the conclusion reached here is inclusive of these countries.

Concluding Remarks

The paper was set to assess whether policy convergence necessarily translates into output convergence. The conclusion is that CMA and SACU countries have on average been stable and shown resilience in macroeconomic management. But this did not result in output convergence. This was found in the four primary targets for the member countries. The rest of SADC does not show any overall pattern towards policy convergence and output convergence. This presents a threat to convergence that might lead to more integration in the SADC community.

The results may imply the need to reassess the case of SADC as a integration model, to an extend that a thorough knowledge and the underlying factors for growth will prove a good prerequisite defining precise direction for integration among members. Therefore, this presents the need for examination of avenues on how balanced is capital flows and capital formation is across the member states.

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