

Effects of economic complexity on economic performance in the Sub-Saharan Africa and BRICS groups: A comparative analysis



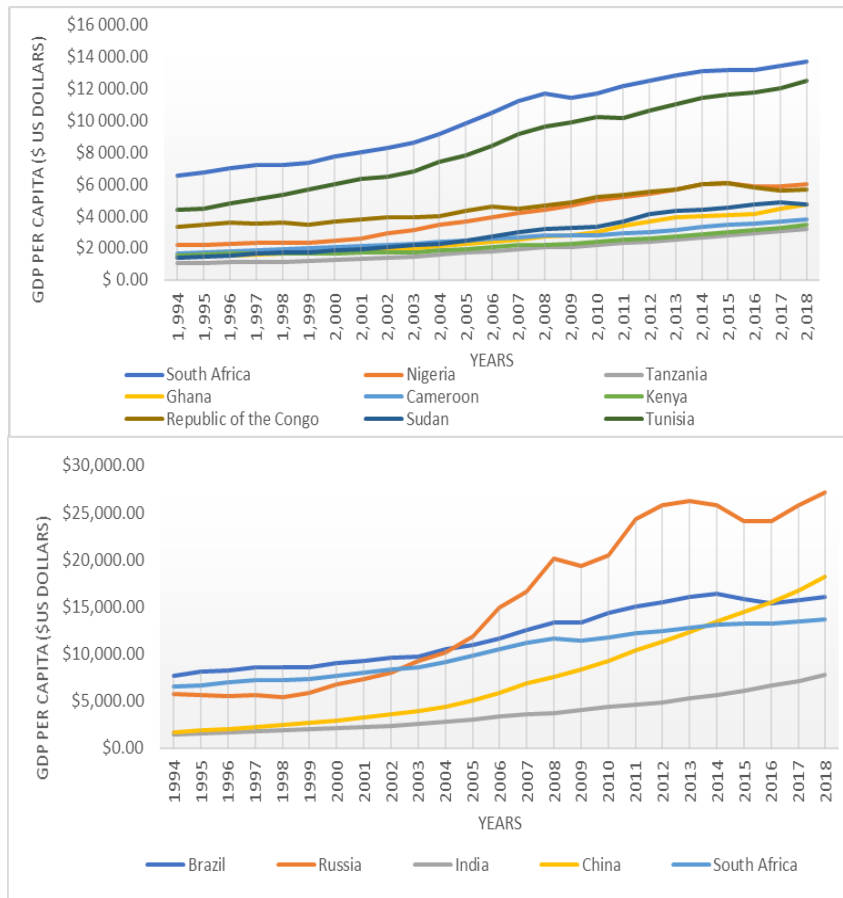
Finding solutions for Africa

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Introduction



- GDP per capita, as a measure of economic performance; living standards of a nation's population embracing economic activity;
- On average countries are not performing well in terms of GDP per capita.
- As opposed to the SSA countries, the BRICS nation show a visible upwards trajectory of GDP per capita, except for India.

Introduction

- Economic complexity: To measure exports market sophistication if it has the capabilities of improving economies; macroeconomic competitiveness and economic performance; countries with complex economic structures experience a privileged source of comparative advantage;
- Africa is still seen much relying on raw unprocessed products



LITERATURE REVIEW

Romer (2018) endogenous theory.

Impact of economic complexity and imbedded in it the idea of knowledge and innovation leading to progress of an economy, and subsequently its people.

Improving economies with reference to absolute and comparative trade advantage.

Economic complexity is a significant and negative predictor (Yellapragada , 2018; Hartmann, et al 2017; Erkan and Yildirimci, 2015; Felipe, Kumar, Abdon & Bacate, 2012)

Positive relationship ECI and GDP per capita (Hidalgo and Hausmann 2009; Stojkoski & Kocarev, 2017; Gao & Zhou, 2018;



METHODOLOGY

Yearly secondary panel data from the period 1994 to 2018,
World Bank & (MIT) Atlas of Economic complexity

$$LGDPpc_{SSAit} = \beta_{0it} + \beta_1 ECI_{SSAit} + \beta_2 RER_{SSAit} + \beta_3 LInd_{SSAit} + \beta_4 LGovex_{SSAit} \\ + \beta_5 LImp_{SSAit} + \beta_6 Inf_{SSAit} + \varepsilon_{it}$$

Im, Pesaran and Shin (IPS, 2003), Levin- Lin-Chu (LLC) and the Fisher-type tests using augmented Dickey-Fuller unit roots.

Panel-based unit root tests have higher power than unit root tests based on individual time series

IPS and Fisher tests are chosen on the basis that they allow heterogeneous coefficients and persistent parameters to move freely across sections



Methodology

Panel cointegration are the Kao test and Pedroni test.

Panel Auto regressive distributive lag (ARDL).

- Panel ARDL method can be applied on variables integrating at different orders that is order I (0) and order I (1), but not order I (2).
- Panel ARDL captures the long run and short run estimates simultaneously.
- The approach is applicable on small number of observations.
- The approach can accommodate the structural breaks in time series data (Pesaran et al. 2001).
- The model is employed because variables employed in the study integrate at different orders, and the method is applicable to small sample size time series.



RESULTS & DISCUSSION

Pedroni Panel Cointegration for SSA and BRICS

Equation	Statistical method	Selected SSA Countries		BRICS Countries	
		Test Statistic (P-value)	Weighted Statistic (P-value)	Test Statistic (P-value)	Weighted Statistic (P-value)
Within Dimension / Panel Statistic	Panel v-Statistic (+)	17.62637*	13.56733*	15.02935*	7.153621*
	Panel rho-Statistic	1.895105	1.798675	2.493787	2.432084
	Panel PP-Statistic	-1.711459**	-1.476192*	-2.299917**	-4.607822*
	Panel ADF-Statistic	-2.846002*	-2.787851*	-2.515522*	-3.279589*
Between Dimensions / Group Mean Statistic	Group rho-Statistic	2.654343		3.300601	
	Group PP-Statistic	-1.548957		-3.572997*	
	Group ADF-Statistic	-2.504127*		-2.608405*	

Source: Author's computation using Eviews 9.0



Results and discussion

Kao Panel Cointegration Test for SSA and BRICS Country Groups

Method	Selected SSA Countries	BRICS Countries
	Test Statistic (P-value)	Test Statistic (P-value)
Kao ADF Test	-1.773910**	-1.036813**
Residual variance	0.001772	0.003579
HAC variance	0.002879	0.007963

Source: Author's computation using Eviews 9.0



RESULTS & DISCUSSION

Panel A: SSA					Panel B: BRICS				
Long run estimates									
Variables	Coefficient	Std. Error	t-Statistic	Prob.*	Variables	Coefficient	Std. Error	t-Statistic	Prob.*
ECI	-0.068256	0.025794	-2.646228	0.0092	ECI	-0.088037	0.003204	-27.47390	0.0000
RER	0.475646	0.069200	6.873452	0.0000	RER	0.392870	0.026567	14.78766	0.0000
LIND	-0.009574	0.007558	-1.266783	0.2075	LIND	0.281440	0.075303	3.737452	0.0005
LGOVEX	0.008422	0.018732	0.449616	0.6537	LGOVEX	-0.355195	0.044529	-7.976769	0.0000
INF	0.000125	8.79E-05	1.423898	0.1569	LPOP	-8.392662	0.314766	-26.66314	0.0000
LIMP	-0.017201	0.019447	-0.884552	0.3781	LUNEMR	0.116602	0.018096	6.443636	0.0000
Short run estimates									
COINTEQ01 (ECT)	-0.231178	0.112964	-2.04646	0.0428	COINTEQ01 (ECT)	-0.518751	0.162884	-3.18478	0.0027
D(LGDPPC(-1))	0.354985	0.109222	3.250107	0.0015	D(ECI)	0.053603	0.011434	4.688245	0.0000
D(ECI)	-0.002891	0.011567	-0.24989	0.8031	D(RER)	0.141565	0.154361	0.917106	0.3641
D(RER)	-0.081960	0.072625	-1.12840	0.2612	D(LIND)	-0.132479	0.223095	-0.59382	0.5557
D(LIMP)	0.034695	0.022205	1.562467	0.1206	D(LGOVEX)	-0.087270	0.057492	-1.51796	0.1362
D(LIND)	0.057547	0.061665	0.933233	0.3525	D(LPOP)	-36.80836	30.61393	-1.20230	0.2357
D(LGOVEX)	-0.075858	0.053625	-1.41450	0.1596	D(LUNEMR)	-0.093506	0.098418	-0.95002	0.3473
D(INF)	-0.000186	0.000409	-0.45624	0.6490	C	85.47148	24.80290	3.446028	0.0013
C	1.726111	0.806545	2.140130	0.0342	@TREND	0.069187	0.025965	2.664568	0.0107



CONCLUSIONS

- The Pedroni and the Kao panel cointegration tests revealed long run effects of economic complexity on GDP
- Economic complexity had negative effects on performance, and this is against the endogenous theory
- Lack of economic transformation or structural changes
- Africa is still much exporting raw resources, with minimal manufacturing
- BRICS countries model adjust at a more rapid adjustment to equilibrium given any disequilibrium in the model system
- BRICS countries, given a direct intervention, will quickly realise much needed inclusive developmental state



RECOMMENDATIONS

- Policy shifts will be required to advance and change the pattern of trade, especially for the SSA economies, with a strong policy for diversifying goods especially given the emergence of the African Free Continental Trade Agreement
- African countries, should invest in its people, mostly youth, to increase access to quality education, thereby a productive society of note across the continent.
- A more inclusive economic development



THE END

THANK YOU 