Determinants of Inclusive Growth in Africa: Role of Health and Demographic Changes

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Abstract
This paper examines the role of health and population growth on inclusive growth in selected 14 African countries from 1995 to 2012. Using the Fixed effect method, the findings indicate that finances from the health sector have greater impact towards the inclusiveness of growth in Africa. It indicated that adequate financing of the health sector is fundamental to improve pro-poor growth in Africa. The population growth of African countries was found to deteriorate the achievement of inclusiveness of growth. Thus, African countries need to make use of her rising population as a blessing and not as threat, so that pro-poor growth can be achieved in the region. In addition, there is need for more government involvement in financing the health sector by providing adequate health care facilities.

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1   Introduction

Today, every country both developed and developing is agitating for growth. Several factors aside labour and capital have been identified as the determinants of growth. For instance, these factors are education, trade, financial development, government consumption, inflation, foreign direct investment, ICT and REER deviations etc. Additionally, there has been controversy on the concept of growth and its measurement by developmental economists, which make the earlier view of growth determinants to be less holistic. Thus, this constitutes the first rationale for this study.

In literature, gross domestic product (GDP) and its variants are majorly used as the measure of economic growth. Developmental economists have queried its suitability as it fails to reduce the number of people that fall within the poverty-line. Kraay (2004) and Berg & Ostry (2011) said that growth needs to be inclusive for it to be sustainable and effective in reducing poverty. In 2008, the Commission on Growth and Development identified the essential characteristics of growth inclusive as equity, equality of opportunity, and protection in market and employment transitions. The measure of inclusive growth have remained limited (Anand, Mishra & Peiris, 2013) because, traditionally, poverty and economic growth have been done separately. Recent study like Berg & Ostry (2011) indicates that there may not be trade-off between equity and efficiency and this will be a great mistake to separate their analyses. This study hinges on a unified measure of inclusive growth developed by Anand, Mishra & Peiris (2013).

Furthermore, they identified macroeconomic stability, human capital, and structural changes as the key determinants of inclusive growth in emerging markets. Other factors considered as the determinant of inclusive growth are education levels, fixed investment, trade openness and foreign direct investment, while technology was considered to have a lesser discernible impact (Anand *et al.*, 2013). However, two components i.e. health component of human capital development and demographic factor such as population, were not considered in their work. Taking into consideration the macroeconomic determinants of inclusive growth, this study contributes to the existing literature by analysing the role of health and population growth on inclusive growth in selected 14 African countries from 1995 to 2012.

The remainder of this sudy is organized as follows. Section two contains relevant literature reviews of past studies. Section three provided the analytical framework, model specification, estimation technique and data description employed for the study. Section four reveals data presentation and analysis and discussion of findings. And, section five presents the concluding part of the study as well as policy options.

2   Literature Review

The usage of the term "inclusive" in growth literatures can be traced to the work of Kakwani & Pernia (2000) who employed it to explain pro-poor growth as growth that enables poor to actively participate and benefit from the growth process. It is a concept that encompasses equity, equality of opportunity and production in market and employment transitions (Commission on Growth and Development, 2009). According to Ali & Son (2007), they defined inclusive growth as the growth process that increases the social opportunity function which depends upon the average opportunities available to the population and how these opportunities are shared among the population. More so, Ali *et al.* (2007) noted the key elements in inclusive growth as

employment and productivity, development in human capabilities and social safety nets and the targeted intervention.

In addition, the international financial body i.e. the World Bank (2009) stated that "inclusive growth can be achieved by focusing on expanding the regional scope of economic growth, expanding access to assets and thriving markets and expanding equity in the opportunities for next generation". Similarly, the Asian Development Bank (ADB, 2013) explains inclusive growth as "output growth that results in a wider access to sustainable socio economic opportunities for a broader number of people, regions or countries while protecting the vulnerable, all being done in an environment of fairness, equal justice and political plurality". Based on the definition of the ADB (2013), Raumiyar and Kanbur (2010) point out that as there is no agreed and common definition of inclusive growth or inclusive development, the term is understood to refer to "growth coupled with equal opportunities and consisting of economic, social and institutional dimensions". They further pointed out that inclusive growth is accompanied by lower income inequality so that the increment of income accrues disproportionately to those with lower incomes (Paramasivan, Mani & Utpal, 2014).

Han & Thorat (2013) stated that inclusive growth is the growth elasticity of poverty that is at any point in time, poverty reduction is the overall objective of any policy. Anand *et al.* (2013) opined that inclusiveness of growth depends on two factors, income growth and income distribution. A study carried out by Paramasivan *et al.* (2014) identified eight drivers (a) economic growth, (b) productive employment, (c) poverty reduction, (d) inequality reduction, (e) human development, (f) gender equality, (g) basic socio-economic infrastructure, and (h) governance of inclusive growth following their interactions from the conceptual framework of Figure 2.1.
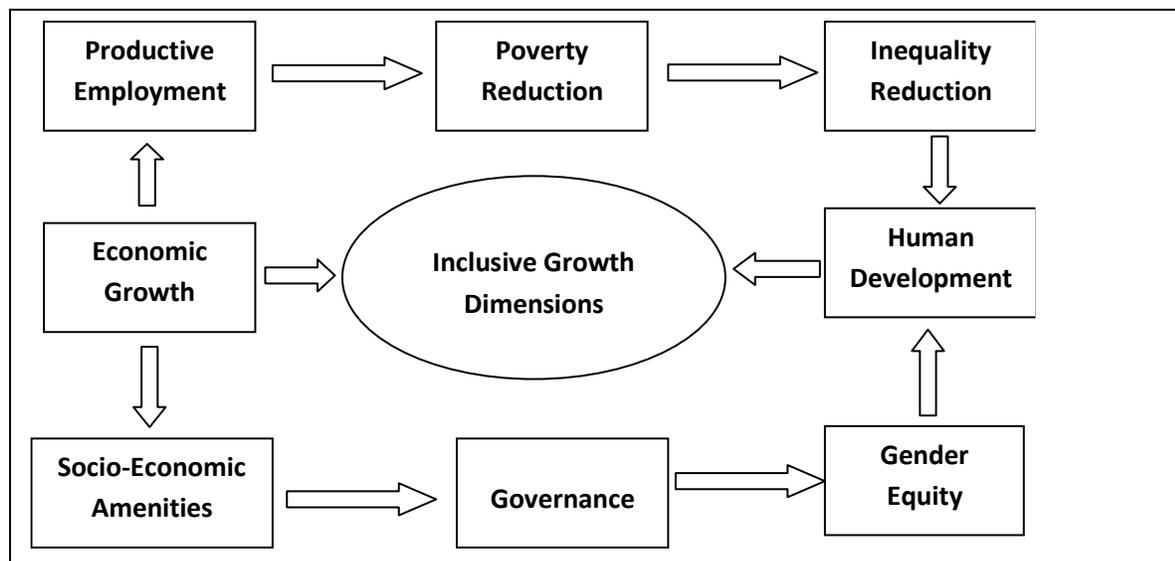

Figure 2.1: Theoretical model of the drivers of inclusive growth
Source: Adapted from Paramasivan *et al.* (2014)

Anand *et al.* (2013) analyse the determinants of inclusive growth for both emerging markets and low income countries using a five years data set from 1970 to 2010. The findings indicated that macroeconomic stability, human capital, and structural changes are the key determinants of inclusive growth in emerging markets. Factors such as education levels, fixed investment are also identified as its determinants while technology shows a less discernible impact. Trade openness and foreign direct investment depicting the structural change and globalization impact were found to have direct impact on inclusive growth. However, the authors failed to consider two important attributes of Africa economies, that is health component of human capital development and demographic factor such as population, were not considered in their analysis. This study contributes to the existing literature by analysing the role of health and population growth in the macroeconomic determinants of inclusive growth in selected 14 African countries.

3   Data and Methodology

The analysis on factor determinants of inclusive growth is a new phenomenon that still lacks a well-developed modelling framework. This study hinges on the model developed by Anand, Mishra & Peiris (2013) by considering the social welfare function and social opportunity function of model as the two indicators for capturing inclusive growth. The social welfare function integrates both growth and equity as a measure for inclusive growth. However, the latter considered average opportunities to the population and the way these opportunities are distributed in the population. For the purpose of this study, we consider the social opportunity function relevant as it reflects the gross domestic product (GDP) per person employed provided in the World Development Indicator (2014).

The measure of inclusive growth by Anand et al. (2013) was developed within a panel regression model, which incorporates output growth performance as well as distribution of economic growth. The authors' model is stated as thus:

$$Y_{i,t}^* - Y_{i,t-1}^* = \alpha_0 + \beta_1^o \bar{Y}_{i,t} + \beta_1^o X_{i,t} + \eta_c + \gamma_t + \vartheta_{c,t} \tag{3.1}$$

Where; $Y_{i,t}^* - Y_{i,t-1}^*$ was taken as the log-difference of $\bar{y}^*$ or inclusive growth in country i at time t, $\bar{Y}_{i,t}$ was the initial level of per capita PPP-adjusted income at the start of 5-year panel period t to reflect conditional convergence, and $X_{i,t}$ was a set of growth and inequality determinants measured as averages of 5-year panel period t. The disturbance term in the regression consists of an unobserved country effect η_c that is constant over time and unobserved period effect (γ_t) that is common across countries, and a component ($\vartheta_{c,t}$) that varies across both countries and years which we assume to be uncorrelated over time. For the purpose of this study, the determinants of inclusive growth considered for selected African countries based on data availability are initial income per capita (RGDPPC), real total health expenditure per capita (RTHEPC), real net official development assistance (RNODAO), population growth (POPg), total government expenditure (TGE) and age dependency ratio (ADR). Therefore, the equation is reformulated as:

$$GDPPE_t = \alpha_0 + \beta_1 RGDPPC_{1.t} + \beta_2 RTHEPC_{2.t} + \beta_3 RNODAO_{3.t} + \beta_4 POPg_{4.t} + \beta_5 TGE_{5.t} + \beta_6 ADR_{6.t} + \mu_t$$
(3.2)

Where; gross domestic product per person employed (GDPPE) measuring growth inclusiveness, initial income per capita (RGDPPC), real total health expenditure per capita (RTHEPC), real net official development assistance (RNODAO), population growth (POPg), total government expenditure (TGE) and age dependency ratio (ADR), α_0 is constant β_{1-6} is the slopes and μ_t is error term.

We begin the empirical analysis by conducting panel unit root test on the series. The Levin-Lin-Chu (LLC) and Im-Pesaran-Shin (IPS) tests are used to determine the order of integration of the variables. We proceed to conduct the cointegration tests to examine the long-run relationship between the variables using the Pedroni's panel cointegration test. Also, we later estimate the panel data model (3.2) using the fixed effect (FE) or random effect (RE) after conducting Hausman's test to determine the best estimator between FE and RE. The scope of analysis for this study span 1995-2012 and data are obtained from the World Development Indicator (WDI, 2014). The selected African countries are Angola, Burkina Faso, Cameroun, Cote d'Ivoire, Egypt, Ethiopia, Kenya, Madagascar, Malawi, Mali, Niger, Nigeria, Sudan, and Uganda. This period is found suitable for our study as it is considered long enough to examine the determinants of inclusive growth in Africa. Microsoft Excel is used for analysing the descriptive statistics and STATA 12.0 is used for analysing econometrics analysis.

4   Data Analysis and Interpretation

4.1   Descriptive Statistics

The descriptive statistics and correlation matrix of the variables is presented in Table 4.1 and 4.2 respectively. The descriptive statistics in for variables under consideration revealed that the growth rate of real total health expenditure per capita, initial income per capita, real net official development assistance, total government expenditure and population growth are 4.46%, 6.2%, 3.5%, 23.2%, 7.9% and 2.7% respectively. However, the average value for age dependency ratio is 4.51. The standard deviation values report that the deviation from their respective means is relatively low. The Skewness and Kurtosis values show that our data sets are not normally distributed.

Table 4.1: Descriptive Statistics

	RTHEPC	RGDPPC	ADR	RNODAPC	TGE	GDPPE	POPG
Mean	4.464	6.218	4.515	3.511	23.230	7.927	2.748
Standard Deviation	0.751	0.688	0.127	0.797	1.894	0.638	0.546
Kurtosis	-0.161	-0.720	2.964	2.444	89.834	0.165	0.411
Skewness	0.161	0.204	-1.498	-1.440	-7.201	0.961	-0.620
Minimum	2.524	4.848	4.068	0.602	21.221	7.071	1.134
Maximum	6.277	7.880	4.709	4.889	26.656	9.479	3.835
Sum	1124.8	1567.0	1137.8	884.7	5853.9	1997.6	692.5
Observation	252	252	252	252	252	252	252

Source: Author's computation (2015).

Table 4.2 below reports the partial correlation of the variables. All the variables have both positive and negative partial relationship with each other. The table found a positive relationship between inclusive growth, health spending, per capita income, and government expenditure. This reveals the importance of income growth per capita, citizenry wellbeing and government involvement towards achieving growth that contains equity and equality of opportunity in Africa. Other indicators such as population growth, age dependency ratio and official development assistance report indirect relationship with GDP per person employed measuring inclusive growth. Similarly, the same sigs were also reported in the case of per capita income growth. Also, the values of correlation co-efficient between other explanatory variables revealed both positive and negative relationship at varying magnitudes.

Table 4.2: Correlation Matrix

	RTHEPC	RGDPPC	ADR	RNODAPC	TGE	GDPPE	POPG
RTHEPC	1						
RGDPPC	0.866	1					
ADR	-0.621	-0.503	1				
RNODAPC	-0.200	-0.216	0.298	1			
TGE	0.778	0.644	-0.659	-0.441	1		
GDPPE	0.815	0.661	-0.737	-0.246	0.750	1	
POPG	-0.448	-0.417	0.816	0.232	-0.473	-0.618	1

Source: Author's computation (2015).

4.2 Econometrics Analysis

Hausman Test

The Hausman test result is presented in Table 4.3 and the Chi-square statistic value (58.44) is found significant at 1% critical level. However, the null hypothesis is rejected and this indicates that the fixed effect estimator is appropriate, consistent and efficient for analysing the effects of macroeconomic factors, health and demographic changes on inclusive growth in African countries in isolation. The null hypothesis of the Hausman test is that country specific effects are not correlated with the regressor. Then, the fixed effects estimator is also the most appropriate for the aggregated analysis compared to the random effect.

Table 4.3: Hausman Test Results

Correlated Random Effects - Hausman Test	Pool: LP		
Test cross-section random effects			
Test Summary	**Chi-Sq. Statistic**	**Chi-Sq. d.f.**	**Prob.**
Cross-section random	58.44	6	0.000

Source: Author's computation (2015).

The fixed effect estimates for the scenarios considered in the analysis are reported on Table 4.4 for the panel regression model. The reported Table 4.4 indicated that real total health expenditure per capita (RTHEPC), initial income per capita (RGDPPC), age dependency ratio (ADR), and real net official development assistance (RNODAO) have direct and significant relationship with

inclusive growth measured by gross domestic product per person employed (GDPPE), and all these follow theoretical expectation except for age dependency ratio. In magnitude terms, a 10% change in real total health expenditure per capita (RTHEPC), initial income per capita (RGDPPC), age dependency ratio (ADR), and real net official development assistance (RNODAO) enhance inclusive growth measured by gross domestic product per person employed (GDPPE) by 0.5%, 10.4%, 4.6% and 0.27% respectively.

Table 4.4: Fixed Effect Results

Dependent Variable: Lerner Index (GDPPE)

Variables	Coefficient	Std. Error	t-Statistics	Prob.
Constant	-0.113	0.801	-0.14	0.888
RTHEPC	0.050	0.028	1.82	0.070***
RGDPPC	1.041	0.064	16.28	0.000*
ADR	0.464	0.155	2.99	0.003*
RNODAPC	0.027	0.009	2.95	0.004*
TGE	-0.024	0.017	-1.40	0.162
POPg	-0.100	0.021	-4.70	0.000*
Adj. R squared	0.843			
F-Statistics	292.88			
Probability	0.000**			

Source: Author's computation (2015).
*, **, *** signify 1%, 5% and 10% significance level.

The table further shows that population growth (POPg) and total government expenditure (TGE) have negative impact on inclusive growth measured by gross domestic product per person employed (GDPPE), and these does not follow a'priori expectation. It further reveals that a 10% growth in population (POPg) and total government expenditure (TGE) deteriorate inclusiveness of growth measured by gross domestic product per person employed (GDPPE) by 0.24% and 1.0% respectively.

The co-efficient of determination indicated that over 84.3% of the total variation of African growth inclusiveness of 1995 to 2012 is accounted for by changes in macroeconomic factors, health and demographic changes. Also, the result reported that the overall incorporated variables were found to have significant impact on inclusiveness of growth in Africa between 1995 and 2012.

5   Conclusion and Policy Options

Recently, policymakers and scholars have called for more inclusiveness of growth across the globe. This has also been engineered by the Arab Spring, the growing divide between Main Street and Wall Street in advanced economies and the 'three speed' world economy by placing inclusive growth at the forefront of policy debates (Anand *et al.*, 2013). This made Anand *et al.* (2013) to develop a unified indicator that integrate two strands (social welfare function and social opportunity function) based on the absolute definition of pro-poor growth as well as its distribution.

Aside constructing the appropriate measurement for inclusive growth, the authors also identified its variable determinants as macroeconomic stability, human capital, structural changes,

education levels, fixed investment, trade openness, foreign direct investment, financial development and technology, neglecting the role of health and demographic changes. This paper examines the role of health and population growth on inclusive growth in selected 14 African countries from 1995 to 2012. These countries are Angola, Burkina Faso, Cameroun, Cote d'Ivoire, Egypt, Ethiopia, Kenya, Madagascar, Malawi, Mali, Niger, Nigeria, Sudan, and Uganda.

The findings revealed that finances from the health sector have greater impact towards the inclusiveness of growth in Africa. It shows that financing of the health system is critical for achieving universal health coverage in Africa, which translates to inclusiveness of growth. Thus, adequate financing of the health sector is fundamental to improve pro-poor growth in Africa. However, the population growth of African countries was found to deteriorate her level of inclusive growth. African countries need to make use of their rising population as a blessing and not as threat, so that pro-poor growth can be achieved in this region. In addition, there is need for more government involvement in financing the health sector by providing adequate health resources.

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