Poverty Reduction in West Africa: An Ex-Ante Impact Analysis of the Cotonou Agreement

Abstract

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Mid-way into the Cotonou Agreement's target year 2020, this study is aimed at a comparative analysis of its effectiveness in poverty reduction in West Africa. The Agreement's existing "Aid Effectiveness" is usually based on an iterative analysis, rather than a pre- and post-impact examination, which this work proposes. Using Nigeria, Cote D'Ivoire and Guinea Bissau from the English-, French- and Portuguese-speaking blocs, based on their respective population, a seven-year comparative study was conducted before the Agreement (1993-1999), and after (2003-2009). A post-Agreement growth - poverty correlation was also conducted. Besides a Paradox of Growth, results showed no significant difference in poverty status within the sub-region, since the Cotonou Agreement. A review of the Agreement's mechanism, and an inward-looking commitment to poverty reduction are recommended.

Introduction

The Cotonou Agreement (CA), a partnership agreement signed on 23 June, 2000 in Cotonou, Benin, between member-states of the African, Caribbean and Pacific (ACP), and the European Union (EU), is principally aimed at reducing poverty in the former.

Preceded by the Lome Convention, the CA was concluded for a twenty-year period, from 1 March, 2000 through 2020, and built on comprehensive partnership based on three complementary pillars: development cooperation, economic and trade cooperation, as well as political dimensions (ACP, 2010). With a five-yearly revision, the CA was last revised on 19 March, 2010, in Ouagadougou, Burkina Faso, following the maiden exercise in June 2005, in Luxembourg. The European Development Fund (EDF), a creation of the 1957 Treaty of Rome, and administered by the European Investment Bank (EIB), is the main instrument of aid in the CA (European Commission, 2006).

Replacing its Stabex and Sysmin with FLEX mechanism (to remedy the adverse effects of export instability), EDF makes disbursements through the EIB, to the private sector: the catalyst for growth and poverty reduction. €22.682 billion was earmarked under the present 10th EDF, for periods 2008 - 2013 (European Commission, 2006).

Organized in seven sections, the objective of this study is to conduct a comparative analysis of the economic health of the West African sub-region, before and after the CA, with particular reference to poverty reduction: its ultimate objective.

The rest of the work comprised the research impetus, theoretical constructs, methodology, analysis, findings, and conclusion/recommendations.

Research Impetus / Significance

The United Nations Economic Commission for Africa (UNECA), in its 1972 African regional analysis, showed that industrial development in Southern Africa was impressive (UNECA, 1972). This was followed by East Africa and Central Africa, in that order. West Africa brought up the rear.

Today, an improvement in West Africa is arguable, as the just-concluded second revision of the CA in Ouagadougou, in July 2010, using the "Aid Effectiveness Principle," by the 79 ACP and 27 EU

partner–states, acknowledged that the CA had not been an absolute success in ultimate poverty reduction (Grimm and Makhan, 2010). This is because Aid Effectiveness focuses more on the cumulative impact rather than the comparative effects (ex-ante impact).

The researcher, considering the reticence of this procedure, proposes an "ex-ante impact" as a better metric for aid effectiveness. The import of this study is reinforced by publications (UNCTAD, 2004; Hayter and Watson, 1985; Bauer, 1983) to the effect that Northern subsidies and aid have paradoxically contributed in undermining the efforts of some African countries to tackle poverty.

Given the urgency of poverty reduction by the CA and the Millennium Development Goals (MDGs), the significance of this study in a probable revisitation of the international aid system in line with the clarion call in the UNDP's 2005 Human Development Report (Riddell, 2007), cannot be over-emphasized.

Theoretical Construct / Hypotheses

The focus of this study is West Africa, which is home to fifteen countries, with an estimated population of over 251 million as at 2006 (ECOWAS, 2011). The sub-region is divided into two distinct groups. The first, the CFA zone, comprises Benin, Burkina Faso, Cote D'Ivoire, Guinea Bissau, Mali, Niger, Senegal and Togo, with their currencies pegged to the French franc (and to the Euro, since 1999). The second is made up of the non-CFA zone of Cape Verde, Ghana, Guinea, Liberia, Nigeria, Sierra Leone and Gambia (ADB, 2001). Cocoa, coffee, timber, cotton, and oil are the sub-region's main sources of export revenue.

The origin of global aid is traceable to the collapse of the colonial world-order between 1945 and 1966. This brought in its wake, a new set of extremely poor, but politically independent states that consequently relied largely on the capital, technology and expertise of the former colonial masters for growth (Kirsch, 2009; Ramos, et al, 2009; Fraser, 2009). The formal institutionalization of aid came in 1970, when the United Nations set a target of 0.7 percent of rich countries' GNP for Official Development Assistance (Brown, 2007).

Today, a "chaotic aid architecture" is discernible (Whitfield and Fraser, 2009), what with the hundreds of agencies and unions in the aid business, with their multiple competing agendas jostling for space in poorer countries. The European Development Fund

(EDF) disbursements under the aegis of the EU-ACP (Cotonou Agreement) are one such aid.

A schism is discernible between Schools of Thought on aid effectiveness in developing countries. While the aid protagonists (Sachs, 2005; Mosley, 1987; Parkinson, 1983) argue that significant improvement in economic development and poverty reduction is traceable to aid, the critics (Hayter, 1971; Hayter and Watson, 1985; Bauer, 1983; Easterly, 2006) insist that aid is a part of the problem. Whereas documented aid-pushed success in Botswana (Maipose, 2009), Ghana, Ethiopia and Vietnam (Punch, 2010), as well as other vulnerable economies (Guillaumont 2007) may justify the pro-aid School, other publications (Thomas, 2010), including those of the Manufacturers Association of Nigeria (Adeloye, 2010), and the European Court of Auditors (ECA, 2010), lend credence to the cynics' standpoint. In fact, the existence of a "Dutch Disease" was even established in the West African CFA zone (Serieux, 2007).

Reports from the EU's country-evaluations (Europa, 2011) based on the traditional iterative impact assessment, revealed that Nigeria, Ghana and Liberia had budgeted sums under various EU-ACP's EDF programme series, spanning ten years from 2000. While Nigeria benefited from the 7th and 9th EDF (with the 8th not applicable to it) to the tune of €652 million, Ghana's 8th and 9th EDF in support of its Poverty Reduction Strategy (GPRS) totaled €532.5 million up to 2006. The Agreement's support for Liberia was predominantly focused on its rice production under the 8th and 9th EDF from 2000 to 2011, with €159.2 million.

In order to comparatively examine the impact of these disbursements on the relevant countries, a relevant null hypothesis is formulated for test, thus:

H_1:   ***There is no significant difference in poverty status in West Africa, before and after the Cotonou Agreement.***

Again, the United Nations Conference on Trade and Development (UNCTAD) reported a possible negative relationship between growth and poverty reduction in the least developed countries, since the early 1990s (UNCTAD, 2008)

This implies that the kind of growth occurring in these parts does not have a strong impact on poverty reduction. With the effective inception of the Cotonou Agreement in 2003, this study further explored the extent of change in the alleged "Paradox

of Growth" in the West African economy, by hypothesizing thus:

H_2: ***There is no significant correlation between economic growth and poverty reduction in West Africa, since the Cotonou Agreement.***

Methodology

This study is limited to Nigeria, Cote d'Ivoire and Guinea Bissau representing the Anglo-phone, Franco-phone and Luso-phone countries of the West African sub-region, based on their relative populations. With a sub-regional population of 251,646,263 (ECOWAS, 2011), the sample size constituting the three countries (Nigeria: 158.3m, Cote d'Ivoire: 20.6m and Guinea Bissau: 1.6m as at 2010), is approximately 72 percent (180,523,068) of the total, and therefore representative enough.

Although poverty has many connotations (Clark, 2005), our measurement of poverty status here uses the UNDP's Multi-Dimensional Poverty Index (MPI). Also called the Human Development Index (HDI), the MPI is a three-dimensional poverty metric, based on living standards, education and health. Again, GDP (PPP) is also used as a measure of economic growth in the sub-region. GDP (PPP), the gross domestic product at purchasing power parity, is an index of the value of the sum total of domestic production, expressed in relative international equivalent in the United States. Furthermore, given that these individual countries have their respective policies on poverty amelioration, the impact of these policies is assumed constant in our analysis of the impact assessment of the Cotonou Agreement.

Consequently, in the test of the first hypothesis, the average sub-regional HDI values (using the three candidate countries) were compared for statistical difference before and after the Cotonou Agreement (CA).

Since the effective take-off of the Agreement was in 2003, the pre- and post-CA analytical periods comprised 1993-1999 and 2003-2009 respectively, using t-test (Robertson, 2002). The essence is to discover if there had been any significant improvement in poverty reduction (a major thrust of the Cotonou Agreement) as indicated by the relevant HDIs in the two periods. The second hypothesis analysed the correlation between economic growth (GDP-PPP) and poverty status (HDI) in the sub-region, since CA. With the rising sub-regional post-CA economic growth figures (World Bank, 2010), the corresponding effect on poverty amelioration was

also examined using correlation coefficient (Churchill, 1976).

This methodology however, is not without limitations, which include the:

i. Indeterminate gestation period for aid effectiveness, with the previous EDFs still running into the present.
ii. Disjointed EDF series, as each may not be applicable to every country in the same period.
iii. HDI's multi-dimensional measure of poverty using living standard, education and health. Education and health are distinct policy areas in most of these countries. Besides, HDI data series and methodology had undergone series of revisions since inception in 1990.
iv. Occasional political upheavals and their attendant impact on economic activities of the representative sub-region.

These notwithstanding, the spread of the study period and sample size are believed to mitigate the net impact of these limitations.

Analysis

The two hypotheses formulated earlier, were tested here, thus:

H_1: ***There is no significant difference in Poverty status in West Africa, before and after the Cotonou Agreement.***

Using t-test, a test of statistical difference between mean HDI at pre-CA (1993-1999), on the one hand, and the corresponding mean at post-CA (2003-2009), on the other, was conducted.

The relevant tables and workings are shown in the Appendix as Workings 1.

The t-test analysis at 0.05 level of significance, and (n - 1) degree of freedom, yielded a t-statistic of 0.280.

Since the null hypothesis can be accepted when -2.571$\leq$ 0.280$\leq$ 2.571, the hypothesis is therefore accepted.

In other words, there is no significant difference in poverty status in West Africa, since the Cotonou Agreement. The difference in HDI mean between the pre-CA (0.414) and post-CA (0.423) is therefore

insignificant and not attributable to the Cotonou Agreement (CA).

H₂: ***There is no significant correlation between economic growth and poverty reduction in West Africa, since the Cotonou Agreement.***

Correlation coefficient (r) was used between GDP (PPP) and HDI, since CA (2003-2009). With HDI as the dependent variable, the corresponding calculations are shown in the Appendix, as Workings 2.

The resultant coefficient (r) is - 0.15.

This shows a negative relationship, implying a decline in poverty reduction (measured in HDI), even as economic growth (GDP-PPP) increased over the period.

With the t-test critical value of 2.571 at degree of freedom (n - 1) for unpaired tests (Peterson, 1982), and 0.05 significance level, the null hypothesis above is accepted, since $- 2.571 \leq -0.15 \leq 2.571$.

Findings

Two major phenomena are discernible, following the test of hypotheses:

First, there is no significant improvement in the poverty status of the West African region since the Cotonou Agreement.

Using the UNDP's Multi-Dimensional Poverty Index at two periods (1993-99 and 2003-09), the Cotonou Agreement had achieved little in its primary objective of poverty reduction in West Africa. This is worrisome, given that the Cotonou Agreement's twenty-year lifespan (2020) is almost at hand.

Second, the perceived rise in economic growth (using the GDP-PPP) paradoxically did not improve the poverty status in West Africa, since the effective commencement of the Cotonou Agreement. Therefore, a *Paradox of Growth* exists in the sub-region notwithstanding the Cotonou Agreement. This corroborates the United Nations Conference on Trade and Development (UNCTAD) report of a prevalence of a negative relationship between growth and poverty reduction in the least developed countries (UNCTAD, 2008).

Conclusion and Recommendations

The poverty-reduction impact of the Cotonou Agreement on West Africa, mid-way through its lifespan, still leaves much to be desired. This is even more worrisome, what with the Millennium Development Goals' (MDG) attainment target of 2015.

The findings showed that the Cotonou Agreement had fared little on the UNDP's Multi-Dimension Poverty index.

The EU is therefore enjoined to focus its attention more, on unraveling and addressing an apparent systemic impediments to, and leakages in its aid, in West Africa. According to Riddell (2007), a system of raising, allocating and deploying official aid, had remained effectively the same as that created more than fifty years ago! A radical and realistic overhaul is urgent.

Again, the challenges of the recent Lisbon Treaty to the West African leadership in particular, are probably a welcome development: this has the potential of sidelining the ACP group in the EU agenda (Bunduku-Latha, 2010). This consequently should challenge the leaders of the sub-region - adjudged the poorest in Africa (UNECA, 1972) - to look inwards, and harness a home-grown option to developmental and poverty reduction imperatives.

Lastly, this study had used a HDI methodology as a metric for poverty. Given the multi-faceted dimensions of poverty beyond living standards, health and education in different countries, a more rigorous methodology that captures these influences is recommended. Also the dynamics of the economies of the "least developed countries" that predisposes them to the growth-poverty paradox (UNCTAD, 2008) should be explored further.

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Appendix

Workings 1 (for Hypothesis 1)

H_1: There is no significant difference in Poverty status in West Africa, before and after the Cotonou Agreement.

T-test for related samples is used, since this is an analysis of change (in HDI) over time. This is given (Robertson, 2002) as:

$$t = \frac{\overline{D}}{S_{\overline{D}}} \quad \text{where} \quad S_{\overline{D}} = \sqrt{\sum_{i=1}^{n} \frac{(D_i - \overline{D})^2}{\frac{n-1}{\sqrt{n}}}}$$

at (n-1) degree of freedom and 0.05 level of significance.

The average poverty standing of West Africa within the two sets of period under review, and as represented by the three chosen candidate-countries, was computed from their corresponding HDI values, as depicted in table 1, thus:

Table 1: Computation of the mean HDI, before and after the Cotonou Agreement (CA), in West Africa, using Nigeria (NG), Cote D'Ivoire (CD), and Guinea Bissau (GB).

HDI (Before CA)					HDI (Before CA)				
Year	NG	CD	GB	Mean	Year	NG	CD	GB	Mean
1993	0.400	0.357	0.297	0.351	2003	0.453	0.420	0.348	0.407
1994	0.393	0.368	0.291	0.351	2004	0.448	0.421	0.349	0.407
1995	0.391	0.368	0.295	0.570	2005	0.470	0.432	0.374	0.425
1996	NA	NA	NA	-	2006	0.506	0.482	0.391	0.460
1997	0.456	0.422	0.343	0.407	2007	0.511	0.484	0.396	0.464
1998	0.439	0.420	0.331	0.397	2008	0.511	0.484	0.396	0.464
1999	0.455	0.426	0.339	0.407	2009	0.423	0.397	0.289	0.370

NB: HDI range: 1 - 0.9 (Very High), 0.899 - 0.800 (High), 0.799 - 0.500 (Medium), 0.499-0.00 (Low). Source: Human Development Reports (HDR), UNDP website: www.hdr.undp.org/en/reports/global/2009/chapters (accessed on 2 November, 2010)

Using the mean HDI before CA (XA) and after (XB) from Table 1, we have further workings for t-test thus:

Table 2: Workings for t-test

Period	X_A	X_B	D_i	D_i^2
1	0.351	0.407	-0.056	0.003136
2	0.351	0.407	-0.056	0.003136
3	0.570	0.425	0.145	0.021025
4	0.407	0.464	-0.057	0.003249
5	0.397	0.464	-0.067	0.004489
6	0.407	0.370	0.037	0.001369

$\overline{X_A} = 0.414,\ \overline{X_B} = 0.423,\ \Sigma\overline{D} = -0.015,\ \Sigma D'^2 = 0.036404$

NB: The mean HDI for 1996 and 2006 were not used, because HDI data for the former, was inaccessible.

Substituting:

$$S_{\overline{D}} = \sqrt{\frac{0.036404 - (-0.091)^2/6}{\frac{6-1}{\sqrt{6}}}} = \sqrt{\frac{0.0070048}{2.449}}$$

$$= 0.0535$$

$$t = \frac{\overline{D}}{S_{\overline{D}}} = \frac{-0.015}{0.0535} = -0.280$$

Critical t value at 0.05 level of significance, and (6-1) degree of freedom = 2.571

Decision rule: Accept H_1, if $-2.571 \leq -0.280 \leq 2.571$

Decision: The null hypothesis (H_1) is therefore accepted:

Workings 2 (for Hypothesis 2)

H_2: There is no significant correlation between economic growth and poverty reduction in West Africa, since the Cotonou Agreement.

Here, economic growth is measured in GDP (PPP), while HDI remains the poverty metric (see methodology). Using Correlation (Churchill, 1976), we have:

$$r = \frac{\Sigma xy}{\sqrt{\Sigma x^2 - \Sigma y^2}} \quad \text{and } y = Y_i - \overline{Y},\ x = X_i - \overline{X_t}$$

Let y = dependent variable (poverty reduction), and
x = independent variable (economic growth)

∴ $y = f(x)$

While the mean HDI values are still relevant here, the mean GDP (PPP) for the three countries are computed in table 3 thus:

Table 3: Computation of the mean GDP (PPP), representing Economic Growth (x) – independent variable

Year	GDP (PPP) in US$ bn			Mean (x)
	NG	CD	GB	
2003	113.5	24.51	1.10	46.37
2004	112.2	24.51	1.164	45.96
2005	125.7	24.78	1.008	50.50
2006	132.9	26.11	1.103	53.37
2007	191.4	29.05	1.249	73.90
2008	294.8	32.86	0.9012	109.52
2009	338.1	34.0	0.857	124.32

Source: CIA World Fact Book (www.theodora.com/wfb), accessed on 16 October, 2010.
Using y as the mean HDI values (after CA) in Table 1, we therefore have table 4 thus:

Table 4: Workings for Correlation

Period	X(Post-CA Mean GDP-PPP)	Y(Post-CA Mean HDI)	$x=(X-\overline{X})$	$y=(Y-\overline{Y})$	x^2	y^2	xy
1	46.37	0.407	-25.62	-0.021	656.38	0.000441	0.538
2	45.96	0.407	-26.03	-0.021	677.56	0.000441	0.547
3	50.50	0.425	-21.49	-0.003	461.82	0.000009	0.064
4	53.37	0.460	-18.62	0.032	346.70	0.001024	-0.596
5	73.90	0.464	1.91	0.036	3.65	0.001296	0.069
6	109.52	0.464	37.53	0.036	1408.50	0.001296	1.351
7	124.32	0.370	52.33	-0.058	2738.43	0.003364	-3.035
Total	503.94	2.997	0	0	6293.04	0.007871	-1.062

$\overline{X}$= 71.99, and $\overline{Y}$= 0.428

Substituting:

$$r = \frac{-1.062}{\sqrt{(6293.04)(0.007871)}} = \frac{-1.062}{7.038}$$

= - 0.15

This shows an inverse relationship (paradox) between Economic Growth (x) and Poverty Reduction (y)

Using critical value for clearer analysis (Peterson, 1982) at α = 0.05 (level of significance), with (7-2) degree of freedom for a two-tailed test, we have 2.571.

Decision rule: Accept H_2 if - 2.571 ⩽ - 0.15 ⩽ 2.571

Decision: The null hypothesis (H_2) is therefore accepted.