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Empirical Analysis of the Key Drivers of Income Inequality in West Africa

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Abstract: This paper extends and contributes to the literature on the drivers of income inequality in West Africa. Principally, it empirically assesses the impact of key domestic and external drivers of income inequality with a view to drawing key lessons for West African countries. Using the dynamic system GMM estimation procedure, the authors analyze an unbalanced pooled time series data set of income distribution in 17 West African countries from 1970 to 2011. Our inequality measures, the market (gross) and net income inequality coefficients, are from a global inequality dataset, which ensures data comparability both through time and across countries. Our novel finding shows strong support for a dynamic, non-monotonic, inverted U-shaped, effect of inequality in the model (as expressed by the lagged values of income inequality). We find evidence of existence of the Kuznets curve in the sub-region, which proposed that inequality may rise with the initial increase in per capita income but will decline subsequently. A non-monotonic, Kuznets-type effect is found for political globalization. Our results also show that access to secondary education (skill premium) social globalization, age dependency (for net income inequality) and democracy strongly and significantly equalize income in West Africa. The authors find that population density, natural resources dependence, domestic investment rate, government consumption expenditure, trade openness, inward foreign direct investment, international remittances, and civil conflicts appear to be income disequalizing in the sub-region. The policy lessons and implications are discussed.

1. Introduction

West Africa has enjoyed one of the strongest economic growth rates in the African continent, and indeed, the world, over the past decade. Figure 1, for example, shows that the sub-region had the largest average economic growth at 6.2 percent between 2010 and 2014 among Africa's regions, and compared with 4.4 percent for Africa during the period. However, there is growing concern that the benefits of this impressive growth have not been inclusive and equitably shared. The combination of high economic growth and stubbornly high income inequality rates remains a puzzle. It is not surprising that income inequality has become a hot development issue across the globe (see, for example, Piketty, 2014).

Tackling the problem of income inequality is important because inequality will negatively affect progress toward the SDGs and poverty reduction generally, among other deleterious effects. The extent of inequality, its major drivers, and what to do about it, have become some of the most hotly debated issues by policymakers and researchers alike.

This paper extends and contributes to the literature on the drivers of income inequality in West Africa in five ways. Firstly, we show why income inequality matters and hence why policymakers need to put high and increased focus on it so as to bring it down sustainably. Secondly, unlike previous studies, the paper uses the most comprehensive data set on market and net income inequality covering 17 West African countries over three decades. Thirdly, using this data set, the paper shows some new, interesting stylized facts on income inequality in the sub-region. Fourthly, the paper empirically assesses the impact of key domestic and external drivers of income inequality with a view to drawing key lessons for the sub-region. Fifthly, we offer policy suggestions in light of the evidence that would help West African countries to effectively tackle the problem of high and persistent income inequality in the sub-region.

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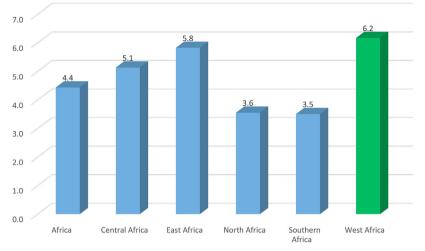


Figure 1: Comparative average sub-regional real GDP growth in Africa, 2010–2014

Source: Authors, using African Development Bank Data.

Thus, the further contents of the paper can be adumbrated as follows. Section 2 briefly discusses why income inequality matters while Section 3 presents some stylized facts on income inequality in West Africa. Section 4 examines a brief literature review. Section 5 presents the model and descriptive statistics while Section 6 presents and discusses the empirical estimates. Section 7 concludes the paper with lessons and policy implications.

2. Why Does Income Inequality Matter?

Income inequality has become a hot development issue across the globe. It is widely recognized that high and persistent income inequality is the defining challenge of our time, a transition between the end of the Millennium Development Goals' (MDGs') period and the beginning of the implementation of the Sustainable Development Goals (SDGs). Tackling the problem of income inequality is important because inequality negatively will affect progress toward the SDGs and poverty reduction generally; it results in inefficient resource allocation, wasted productive potential and impaired institutional development, among others.

As Melamed (2011) has argued, high income inequality is morally unacceptable to many as high income inequality means that some individuals and groups (genders, geographies, religions and ages) are systematically deprived of their rights. High income inequality has negative effects on poverty reduction and on a country's growth and stability. It restricts growth (see, for example, Persson and Tabellini, 1991; Alesina and Rodrik, 1994; Okojie and Abebe, 2006; Ncube *et al.*, 2014) and its sustainability (see Berg and Ostry, 2011; Ostry *et al.*, 2014), hence the skills and talents of a significant part of the population are unused. Also, high income inequality is bad politics since a very unequal society is often a less stable society as it is unlikely to represent views, especially of the marginalized.

The IMF (2014) and Dabla-Norris *et al.* (2015), concur by indicating that high income inequality can be a signal of lack of income mobility and opportunity, reflecting a persistent disadvantage for particular segments of the society while having significant implications for growth and macroeconomic stability. In addition, high income inequality leads to a suboptimal use of human resources, concentrating political and decision-making power in the hands of a few, thus adversely affecting drivers of growth such as causing investment-reducing political and economic instability, raising crisis risk (see Rajan, 2010), hampering poverty reduction (see, for example, Ncube *et al.*, 2014; Anyanwu, 2014a). It also hinders the achievement of macroeconomic stability and growth and is associated with conflicts due to the damage to trust and social cohesion. In turn, this discourages investment (especially in human and physical development) and reduces economic growth (see Cojocaru and Diagne, 2014 for detailed review). It could also lead to policies that hurt growth and development generally in addition to adversely affecting people's happiness (Alesina *et al.*, 2004), lowering the levels of mobility between generations (Corak, 2013), and leading to substantially larger external deficits (Kumhof *et al.*, 2012).

Putting all these together, Nissanke and Thorbecke (2006) provide a very good framework on the channels through which high income inequality affects the economy (Figure 2). The figure shows that high initial inequality leads to rent-seeking, social tensions, political instability, a poor median voter, imperfect capital markets and a small share of gross national income (GNI) to the middle class, all of which lead to lower investment, higher taxation and lower economic growth (see UNDP, 2013; UN, 2013).

Thus, understanding the causes of income inequality in West African countries is fundamental to devising policy measures that can allow the rising prosperity of recent decades to be shared more broadly than has been evident so far. Indeed, reducing inequality remains important not just from the point of view of achieving a more egalitarian distribution of income and addressing the welfare and social concerns that widening disparities in income raise. Evidence has shown that nations that effectively address income inequality tend to experience more harmonious civil and political societies, with greater happiness, and typically have more sustainable growth and reduced crime as well as other forms of social upheavals. Income inequality increases social discontent and fuels social unrest as evidenced during the recent 'Arab Spring'. The consequent social unrest increases the probability of mass violence, revolutions, coups, policy uncertainty, and threat to property rights, thus reducing domestic and foreign investment and, consequently reducing economic growth.

3. Stylized Facts on Income Inequality in West Africa

The pattern of income inequality reveals that average income inequality in West Africa reached a peak in 1991 at 51.1. Average income inequality decreased somewhat thereafter until 2010 but rose marginally to 44 in 2011. Indeed, the trend in average income inequality reflects the long-term stability of the income Gini coefficient in the sub-region. Figure 3 presents the trend of decadal averages of market income inequality in West Africa. The sub-regional averages are unweighted means of country averages during the decades of the 1970s to 2000s. It shows that income inequality had been high and persistent in the sub-region, in spite of some marginal overall decline between the 1990s and the 2000s, from about 49 to 46. Another feature is that income inequality increased during the 1990s from their 1980s' levels.

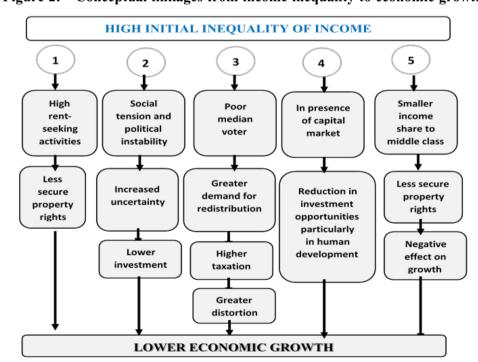


Figure 2: Conceptual linkages from income inequality to economic growth

Source: Nissanke and Thorbecke (2006).

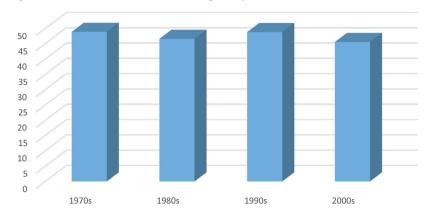


Figure 3: Trend in income inequality in West Africa, 1970s–2000s

Note: The Gini coefficient is a measure of inequality that varies between 0 (complete equality) to 100 (all income goes to one individual).

Source: Authors, using SWIIDv5/Solt (2014) and World Bank Data from WDI.

However, these sub-regional averages mask country differences. For example, São Tomé and Príncipe tops the list of unequal countries in West Africa (Figure 4). These are followed by Sierra Leone, Burkina Faso, Nigeria and Guinea Bissau, in that order. Another interesting feature is that no West African country had an average Gini coefficient below 41.

Figure 5 shows a scatterplot of West African countries on log of average real GDP per capita and average market income inequality. Countries that are in the south-east quadrant indicate those that have experienced a low real per capita GDP and relatively very high levels of income inequality. They include The Gambia, Guinea Bissau, Niger, Burkina Faso and Sierra Leone. West African countries in the north-east quadrant have had high real GDP per capita but relatively high income inequality, indicating the non-inclusive nature of the high level of economic development in those countries. This is particularly so for Cape Verde, São Tomé and Príncipe, and Nigeria. Countries in the north-west quadrant experienced high level of real per capita GDP but relatively low income inequality, demonstrating relatively more inclusive economic development. It is not surprising to find countries like Côte d'Ivoire, Mauritania and Senegal, for example, in this quadrant.

In the south-west quadrant, we find countries that have relatively low income inequality in spite of their low real per capita income. They include Liberia, Guinea, Mali, Ghana, Benin and Togo. Another interesting observation from Figure 5 is the inverted U-shaped relationship between economic development and income inequality in West Africa.

4. Review of Key Drivers of Income Inequality

We organize recent empirical literature on the factors that drive income inequality around key ones as shown below, though in many cases empirical results revolve around multiple factors.

4.1 Levels of Past Income Inequality

Income inequality is said to be characterized by a great degree of inertia, which does not allow for a rapid and dramatic change. It has been suggested therefore that levels of past income inequality are associated with current levels of income inequality. The empirical results of Li *et al.* (1998), Dincer and Gunalp (2012), and Mahmood and Noor (2014), confirm this hypothesis.

4.2 The Level of Economic Development

Kuznets' (1955) seminal paper argues that as countries develop, income disparity first increases, peaks and then decreases. He argued that an initial increase in income is associated with increasing income inequality while with further increases in income,

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São Tomé and Príncipe Sierra Leone Burkina Faso Nigeria Guinea-Bissau Gambia, The Niger Cape Verde Liberia Guinea Mauritania Mali Senegal Côte d'Ivoire Ghana Benin Togo 10 20 30 50 0

Figure 4: West Africa — average income inequality by country

Note: The Gini coefficient is a measure of inequality that varies between 0 (complete equality) to 100 (all income goes to one individual).

Source: Authors, using data from SWIIDv5/Solt (2014).

income inequality reaches a maximum and then starts declining. Therefore, it is hypothesized that GDP per capita will have a positive sign and the squared term of GDP per capita, a negative sign. The resulting Kuznets curve therefore argues that GDP per capita (income) and income inequality have an inverted U-shaped relationship. Some of the studies that confirm the Kuznets curve include Alderson and Nielsen (2002) for OECD countries, Dincer and Gunalp (2012) for the United States, and Seneviratne and Sun (2013) for ASEAN-5. However, Lee *et al.* (2013) for Korea and Claus *et al.* (2012) for Asian countries, confirm Barro's (2000) hypothesis of a U-shaped relationship between per capita GDP and income inequality.

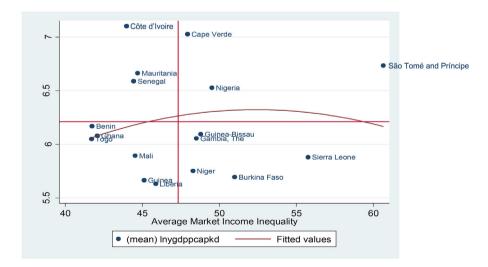


Figure 5: West Africa — average GDP per capita and market income inequality

Note: The Gini coefficient is a measure of inequality that varies between 0 (complete equality) to 100 (all income goes to one individual).

Source: Authors, using estimation data.

4.3 Demographic Variables

The key demographic variables hypothesized to influence income inequality include population density (also an ecological variable) and age dependency or population structure. According to Midlarsky (1982) and Midlarsky and Roberts (1985), population density is an indicator of the relative scarcity of national resources and the relative strain placed on domestic carrying capacity. In particular, in agrarian societies, the higher the population density, the greater is the tendency toward income inequality and as Liu and Lawell (2015) indicate, it reflects the intensity of a country's economic activity. It is therefore posited that population density serves as a rough indicator of a demographic burden contributing to greater absolute as well as relative poverty among the masses (see Chan, 1989).

Higher youth dependency, which is defined as the ratio of the number of persons aged 0–15 to the number of persons aged 16–64, is hypothesized to lead to greater income inequality, principally because higher youth dependency suggests a higher average number of children per household and lower household per capita income. In the same vein, old-age dependency, which is defined as the ratio of persons aged 65 or over to the number of persons aged 16–64, is expected to be associated with relatively lower income inequality, given the flatter income profile of this age group. However, these two age groups, especially in developing countries, are dependent on the working population and therefore determine the dependency burden of a country. A higher dependency burden would translate into lower incomes per capita or higher income inequality hence the expected sign on each variable is positive, all things being equal. Deaton and Paxson (1997) and Lee *et al.* (2013) have shown that aging leads to an increase in income inequality. Claus *et al.* (2012) have empirically found negative significant effects for both youth dependency and old-age dependency for Asian countries. Dincer and Gunalp (2012) found an inverted U-shaped relationship between age dependency and income inequality in the United States.

4.4 Human Capital

It is generally believed that a higher level of education or skill premium, representing diffusion of education or 'skills deepening', is expected to increase the income of households and individuals and hence should reduce income inequality. This is consistent with straightforward supply and demand reasoning under which an increase in the supply of skilled (or credentialed) workers will reduce the wage differential between the skilled and unskilled (Lecaillon *et al.*, 1984). However, Crenshaw and Ameen (1994) have argued that the relationship is reversed and becomes positive at high levels of educational expansion, reflecting the emergence of a new post-industrial regime. In addition, as Knight and Sabot (1983) had stated, there are two distinct effects of education on income distribution: the 'composition effect' and the 'compression effect'. The 'composition effect' increases the relative size of the educated people and tends to raise income inequality first, but eventually lowers it. On the other hand, the 'compression effect' lowers income inequality because the return on education decreases as the relative supply of educated people increases. Thus, the effects of education on income inequality depend on the strength of these two effects (Dincer and Gunalp, 2012). The hypothesis of a significant negative effect of education on income inequality has been confirmed by Knight and Sabot (1983), Crenshaw and Ameen (1994), Barro (2000), Alderson and Nielsen (2002), Anyanwu (2011), Claus *et al.* (2012), Dincer and Gunalp (2012), and Mahmood and Noor (2014). Dabla-Norris *et al.* (2015) find that higher skill premium is associated with widening inequality in advanced economies.

4.5 Natural Resources

The resource curse argument indicates that natural resources dependence increases the possibility of rent capture and the creation of a rentier state which exacerbates the inequality not only because of the rent extraction by the ruling elite but also because of limited redistribution towards the lower socioeconomics segments of the population. Thus, it is postulated that natural resource abundance: (a) creates rents that are easily captured by the ruling elite hence exacerbating the income gap between the higher and the lower classes; (b) is associated with retardation of the emergence of manufacturing and industrialization; and (c) impedes creation of effective and efficient institutions that would put more stringent constraints on the possibilities of rents expropriation. Empirical results from Buccellato and Alessandrini (2009) confirm positive natural resource rents effect on income inequality while Mallaye *et al.* (2014) find negative effect of oil rent but this turns positive when interacted with corruption.

4.6 Domestic Investment Rate

The intuition on the relationship between domestic investment and income inequality is that domestic investment spending means more people getting jobs, which implies that more people are earning, thereby putting a downward pressure on income inequality. With respect to regional inequality in China, Zhang and Zhang (2003) find that unequal domestic investment spending across the regions is the largest factor behind increasing inequality in the regions. Székely and Sámano (2012) do not find a significant effect of the investment rate on income inequality in Latin America just as Seneviratne and Sun (2013) do for ASEAN-5. Lee *et al.* (2013) find negative significant effects for Korea as Chaudhry and Imran (2013) do for Pakistan.

4.7 The Size of Government/Government Consumption Expenditure

Government involvement in the economy (as well as a wider proxy of the effect of redistribution and government policy variable) can be captured by the size of the government. The size of government may matter for income inequality since larger governments may be more able to meet the demands of lower income households and individuals through different social programs, leading to better distributional outcomes (Claus *et al.*, 2012). The idea is that government spending tends to increase income of all sections of the society especially the poorer sections, therefore decreasing income inequality. Odedokun and Round (2004) and Anyanwu (2011) for African countries find no significant effect while Dabla-Norris *et al.* (2015) find a positive effect for OECD countries.

4.8 Globalization

Various indicators of globalization are hypothesized to affect income inequality differently. For example, the Stolper–Samuelson theorem (Stolper and Samuelson, 1941) provides the principal analytical link between trade liberalization and income inequality. It proposes that increased trade openness in a developing country where low-skilled labor is abundant would result in an increase in the wages of low-skilled workers and a reduction in the compensation of high-skilled workers, resulting in a reduction in income inequality. However, the rising skill premium is based on the assumption that technological change is inherently skill-biased, hence observed increases in income inequality is attributed to exogenous technology shocks. Milanovic's (2005) survey of recent empirical literature shows that most studies find either no statistically significant relationship (as in Anyanwu, 2011) or a negative relationship between trade globalization and inequality. IMF (2007) finds that export trade (not overall trade globalization) exerts an equalizing impact. Trade openness turned out to have insignificant effects on income inequality from studies by Dabla-Norris *et al.* (2015) in emerging markets and developing countries (EMDCs) and Anyanwu (2011) as in the case of Africa as a whole. This contrasts the findings of Barro (2000) and Lee *et al.* (2013) who find that trade openness has a positive and statistically significant effect on income inequality, implying that trade expansion would increase income inequality. On the other hand, Campante and Do (2007) find that income inequality is reduced by trade dependence.

Also, it is posited that an increase in foreign direct investment (FDI) from advanced economies to developing economies could increase the relative demand for skilled labor, increasing income inequality in both developed and developing economies. Empirical results on the FDI-income inequality have been mixed. For example, Behrman *et al.* (2003) find negative effects in the short term in Latin America, while Milanovic (2005) suggests that the evidence from a wide sample of countries is inconclusive. The IMF (2007) also finds that financial globalization, and especially FDI, is associated with higher inequality in developing countries. Recent results by Sturm and De Haan (2015) suggest that globalization is positively significant: financial globalization (FDI stock) drives this finding, as trade openness is not significant. Jaumotte *et al.* (2013) find that trade globalization is associated with a reduction in income inequality, whereas financial globalization is associated with an increase in inequality. Some studies have also used Konjunktur-forschungsstelle's (KOF's) overall globalization index — which takes into account actual economic flows (e.g., trade, foreign direct investment), economic restrictions (e.g., import barriers, tariff rates), on information flows (e.g., internet users, trade in newspapers), personal contact (e.g., telephone traffic, international tourism), and cultural proximity — to test the effect of globalization on income inequality. Results from Claus *et al.* (2012) show that globalization has a significant positive effect on income inequality.

4.9 Democracy

There is the assumption that democratization, through the median voter hypothesis, should lead to greater redistribution and a reduction in inequality (Milanovic, 2000; Gradstein and Milanovic, 2004). This proposition is confirmed by the empirical results of Campante and Do (2007).

4.10 Unemployment

It is posited that there is a positive relationship between unemployment and income inequality because higher unemployment means more people without jobs or lower incomes for families. Mocan (1999) shows that an increase in structural unemployment results in increasing income inequality since income inequality is countercyclical in behavior, that is, increases in unemployment worsen the relative position of low-income groups. Apart from hurting lower income groups, higher unemployment results in poorer people losing their jobs more often, hence their incomes become even lower. In a study of OECD countries, Checchi and Garcia-Penalosa (2010) and Maestri and Roventini (2012) also find that higher unemployment rates increase income inequality. Monnin (2014), in a study of developed countries find that unemployment increases income inequality. In addition, Claus *et al.* (2012) and Dincer and Gunalp (2012) show that an increase in unemployment results in increasing income inequality.

4.11 Foreign Aid

As Herzer and Nunnenkamp (2012) observe, for ODA to be effective in reducing income inequality in recipient countries, donors would have to allocate aid in line with their rhetoric on pro-poor growth, by targeting the most needy and deserving; and the authorities in the recipient countries would have to ensure that aid actually reaches the poor. In most cases, however, these prerequisites tend to be violated once it is taken into account that foreign donors are not purely altruistic and local authorities have incentives to divert aid funds for personal benefit. Donors do have both altruistic and egoistic motives (Berthélemy, 2006) in addition to the incentive to 'push money out the door' (Drazen, 2007: 672) even when aid has not proved effective in the past. In addition, aid conditionality may have adverse income distributional consequences since in most cases, these conditions are not pro-poor. In aid-recipient countries, as Boone (1996) observes, all political systems favor a 'high-income political elite' when it comes to aid distribution. In addition, foreign aid can affect inequality through the ethnic diversity hypotheses whereby political leaders who belong to a particular ethnic group will tend to prefer that ethnic group when distributing foreign aid, thus exacerbating income inequality. Moreover, rent seeking and corruption in the recipient countries could lead aid exacerbating income inequality.

Empirically, Chase-Dunn (1975) indicates that foreign aid has a positive impact on income inequality while Calderón *et al.* (2006) find no robust relationship between inflows of foreign aid and income inequality except in the presence of good institutions. Bjørnskov (2010) finds a negative relationship between aid and income inequality. Chong *et al.* (2009), using cross-section and system GMM panel techniques, find some weak evidence that foreign aid is conducive to the improvement of the distribution of income when the quality of institutions is taken into account though this result is not robust. The random effects panel analysis by Bjørnskov (2010) shows that the interaction of foreign aid and democracy in the recipient country is robustly and positively associated with income inequality. On the other hand, Shafiullah (2011) estimates fixed and random effects models and concludes that aid reduces income inequality. Saidon *et al.* (2013), using a panel of 75 foreign aid recipient countries covering the period 1995–2009 show that aid to the economic sector has a significant impact in reducing income inequality while aid to the multi-sector significantly increases income inequality. Employing a dataset covering 27 countries in sub-Saharan Africa over the period 1990–2011, Pham (2015) finds evidence of an inequality-increasing effect of foreign aid in sub-Saharan Africa though this effect can reverse when corruption is controlled.

4.12 Civil War/Civil Conflict

Civil conflicts adversely affect income inequality because they lead to the destruction of productive forces (especially human and physical capital) of the economy, increased transaction costs, reduction in social spending, and disruption of economic activity

due to an unsafe business environment (Bircan *et al.*, 2010). Consequently, the scarcity of physical and human capital results in rising relative prices of capital intensive goods, while, at the same time, owners of unskilled labor face risks of falling wages and unemployment. These result in widening of the income gap, especially with the rise of a small percentage of war profiteers.

To the best of our knowledge and from the literature examined, there had been no empirical analysis of the key drivers of income inequality in or for the West African region taken together. Also, the focus of previous studies on the war-inequality nexus has been on the role of inequality in promoting wars, rather than the reverse. Thus, this paper is the first that also analyzes the distributive impacts of wars in the region, which is in contrast to previous literature that has focused on the other direction. To the best of our knowledge, this is a novel undertaking. In addition, throughout the literature, we did not come across the use of the double lag of the dependent variable. Part of the novelty of this paper is the remedying of this by incorporating the first two lags of the dependent variable as independent variables. Their inclusion in our model gauges not only the continued persistence of income inequality but also controls for some excluded but potentially important variables in the model. Moreover, for the subregion, our study is the first time a long series of comparable data on income inequality through time and across countries had been applied.

5. The Model, Estimation Strategy and the Data

5.1 The Model and Estimation Strategy

Since income inequality changes very slowly, current inequality is likely to be affected by inequality in the previous period(s). Due to this dynamic nature of inequality, we estimate the following dynamic panel data model:

$$IncInequality_{c,t} = aIncInequality_{c,t-i} + \beta' X_{c,t} + t_t + \mu_c + \varepsilon_{c,t}$$
 (1)

where $IncInequality_{c,t}$ represents each of our measures of income inequality in country c during period t; whereas $X_{c,t}$ represents the set of control variables that affect income inequality other than lagged Income Inequality. μ_c represents the country-fixed effects, while t_t represents the time-fixed effects, and ε_{ct} represents the error term. Our dependent variable is the market income inequality based on households' income before taxes and transfers measure $(gini_market)$ from Solt's (2014) recently developed Standardized World Income Inequality Database (SWIID) — which ensures data comparability both through time and across countries.

Our first two independent variables are the *lagged values of the Gini coefficient* and we expect at least the first lag to be associated with higher contemporaneous levels of the Gini coefficient given the tendency of income inequality to persist over time. Their inclusion in our model, a novel practice to gauge the continued persistence of income inequality, also helps to control for some excluded but potentially important variables in the model.

In order to test Kuznets' curve hypothesis, we introduce the *natural log of real GDP per capita* and *squared term of the log of real GDP per capita*. According to this hypothesis, the short-term effects of GDP per capita would increase income inequality, while long-term effects would decrease it.

Population density is the next control variable. One would expect to observe a positive relationship between the population density and income inequality.

We test the hypothesis that the diffusion of education or human capital, measured as the *secondary school enrolment ratio*, has a negative effect on income inequality.

In order to strengthen our empirical results, we include additional control variables. One of these variables is the *age dependency ratio* (a demographic variable consisting of the proportion of people in a country below 15 and the proportion of people above 65 years of age) to capture dependency burden. The others are *natural resources abundance* to account for the extent to which dependence on natural resources affects income inequality; *investment rate* as a macroeconomic variable representing the use of physical capital in production; and the *ratio of government consumption expenditure to GDP* to account for the provision of public goods, the degree of intervention in the marketplace, and the possible use of redistributive expenditures.

Also, the sum of exports and imports as a percentage of GDP is added to account for the effect of trade openness on inequality while inward stock FDI as a share of GDP accounts for financial globalization. Both trade openness and inward FDI stock as a

share of GDP represent two 'standard' economic globalization variables as it has been postulated that globalization is a key factor driving income inequality (see, for instance, Feenstra and Hanson, 1996; Milanovic, 2005; IMF, 2007; Sturm and Haan, 2015). Along the same reasoning, we add KOF's indices of *political globalization* (comprising embassies in country, membership in international organizations, participation in UN Security Council Missions, and international treaties) and *social globalization* (comprising personal contacts, information flows and cultural proximity) developed by Dreher (2006; Dreher *et al.*, 2008).

Another financial globalization variable is *international personal remittances received as a percentage of GDP* to determine equalizing or unequalizing effect on the recipients in the home country. In order to gauge the effect of the political regime on income inequality, we use *democracy* (takes a value from 0 [absence of democracy] to 10 [best]) as measured by Polity2 index taken from Polity IV. Given the hypothesized unequalizing effect of civil conflicts, we include civil wars, especially since the sub-region has been characterized by high incidence of civil conflicts. The role of foreign aid is captured by *net ODA as a percentage of GDP*. Finally, there is empirical evidence that there will be positive relationship between *unemployment rate* and income inequality on the ground that increases in unemployment means more people lose jobs or lower incomes for families. On this ground, we include total unemployment rate.

We analyze an unbalanced pooled time series data set for income distribution in 18 West African countries from 1970 to 2011. Given the dynamic nature of Equation (1) and the presence of fixed effects to account for unobserved country heterogeneity, the equation is estimated using the Arellano–Bover/Blundell–Bond system GMM estimator. The validity of the moment conditions are carried by means of the Sargan test of overidentifying restrictions. We also test the null hypothesis of no second-order serial correlation in the error term using the Arellano–Bond test for autocorrelation.

5.2 The Data

Gini coefficients can be calculated for gross income (that is, before taxes and transfers) and net income (i.e. after taxes and transfers). In this part of the analysis we use gross (market) income Gini coefficients, as we are interested in the income distribution resulting from market processes. As the dependent variable we use market income inequality measure based on households' income from Solt's (2014) recently developed Standardized World Income Inequality Database (SWIID). While the Luxembourg Income Study data serves as the standard, the SWIID uses a custom missing-data multiple-imputation algorithm to standardize observations collected from the United Nations University's World Income Inequality Database, the OECD Income Distribution Database, the Socio-Economic Database for Latin America and the Caribbean generated by CEDLAS and the World Bank, Eurostat, the World Bank's PovcalNet, the UN Economic Commission for Latin America and the Caribbean, the World Top Incomes Database, the University of Texas Inequality Project, national statistical sources around the world, and many other sources. The SWIID data ensures comparability both through time and across countries.

Other sets of data (1970 to 2011) for the variables in Equation (1) are largely drawn from the World Bank's WDI Online database, except democracy from the PolityIV Project Online (2013) (see Marshall, 2013), political and social globalization that are from the 2015 KOF Index of Globalization, and civil war episodes taken from Marshall's (2013) Major Episodes of Political Violence (MEPV2012). The descriptive statistics are presented in Table 1. It reports the sample mean, median and standard deviation of the variables used in the estimations.

6. The Empirical Results

6.1 Main Results and Discussion

The results of the Arellano–Bover/Blundell–Bond system GMM estimation are given in Table 2. The Sargan test of overidentifying restrictions is satisfactory, as is the Arellano–Bond test for AR(2) errors. The estimation model includes time dummies and robust standard errors.

There are some important results that emerge from our analysis. We find strong support for a dynamic, non-monotonic, effect of inequality in the model (as expressed by the lagged values of income inequality). Our results show a novel finding that there is a strong positive correlation between previous year and present values of income inequality. Thus, income inequality in West Africa is characterized by a great degree of inertia, which does not allow for a rapid and dramatic change.

Table 1: Descriptive statistics of main regression variables

Variable	Observations	Mean	Median	Standard Deviation
Gini_market	282	47.11	46.50	6.06
Gini_net	282	41.49	40.98	5.05
Log real GDP per capita	658	6.19	6.10	0.53
Population density	731	53.24	44.06	41.40
Secondary school enrolment	447	20.40	15.85	15.86
Female adult mortality rate	714	304.78	293.65	83.50
Age dependency	714	91.38	91.26	8.05
Natural resources rents (%GDP)	658	11.33	7.17	12.09
Gross capital formation (%GDP)	568	18.87	17.56	9.56
Government consumption expenditure (%GDP)	587	14.55	12.96	7.42
Inward FDI stock (%GDP)	532	11.27	6.66	14.19
Trade openness	636	65.47	60.91	27.23
Personal remittances received (%GDP)	502	3.45	1.77	4.47
Political Globalization Index	705	49.55	44.07	19.97
Social Globalization Index	705	22.19	22.28	7.09
Democracy (Polity2)	663	-1.78	-4.00	5.84
Civil war	674	0.17	0	0.68
Net foreign aid (%GDP)	672	0.14	0.11	0.15
Unemployment rate	353	11.19	7.90	7.51

Source: Authors' calculations, using data estimation data.

Indeed, higher immediate past year's levels of income inequality are associated with higher current levels of inequality and this is significant at the 1 percent significance level. This conforms to the results of Calderon and Chong (2001), Dincer and Gunalp (2012) and Mahmood and Noor (2014). Our result, however, suggests that although higher levels of immediate past income inequality are positively and significantly associated with current levels of income inequality, above a certain point, higher levels of past income inequality act to reduce current levels of income inequality, holding other factors constant. This relationship suggests that the marginal effect of past income inequality exhibits decreasing returns for current income inequality in West Africa.

We find evidence of existence of the Kuznets curve in the sub-region, which proposes that inequality may rise with the initial increase in per capita income but will decline subsequently. In our estimation, GDP per capita and the squared term of the GDP per capita enter the equation with the correct signs of the Kuznets curve (GDP per capita is positive, while the square term is negative). Both variables are significant at the 1 percent level of significance. Our finding indicates that a curvilinear relationship between economic development and income inequality is inverted U-shaped, the inflection point being real per capita income of US\$896.211.

A significant positive relationship between the population density and income inequality is found for West Africa. The estimates suggest that a one percentage point increase in population density increases income inequality in West Africa by 0.64 percentage points. Our results appear to agree with those of Midlarsky (1982) and Midlarsky and Roberts (1985) given also that in West Africa being predominantly agrarian, the higher the population density, the greater is the tendency toward income inequality. However, our results contradict those of Campante and Do (2007), who find that population density is negatively associated with income inequality in a cross-section of developing and developed countries.

Access to secondary education (skill premium) has a significant negative impact on income inequality in West Africa in conformity with the findings of Knight and Sabot (1983), Crenshaw and Ameen (1994), Park (1996), Barro (2000), Checchi and Garcia-Penalosa (2010), Alderson and Nielsen (2002), Calderon and Serven (2004), and Dincer and Gunalp (2012). This means that the 'compression effect' is greater than 'composition effect' in West Africa. Our results therefore indicate that as education diffuses throughout the population, the supply of skilled workers increases, reducing the wage differential between the skilled and unskilled. Our estimates suggest that a one percentage point increase in secondary education enrolment is associated with a reduction in income inequality in the sub-region by 0.08 percentage point.

Table 2: Key drivers of market income inequality in West Africa (dynamic GMM estimates)

Variable	Coefficient	t	
Gini_market_1	1.661	22.06***	
Gini_market_2	-0.834	-12.35***	
Log GDP per capita	11.924	4.25***	
Log GDP per capita ²	-0.877	-4.26***	
Population density	0.643	2.06*	
Secondary school enrolment	-0.075	-2.88**	
Age dependency	-0.049	-0.90	
Natural resources rents (%GDP)	0.094	3.29***	
Gross capital formation (%GDP)	0.075	4.57***	
Government consumption expenditure (%GDP)	0.137	2.81**	
Inward FDI stock (%GDP)	0.060	4.12***	
Trade openness	0.028	2.82**	
Personal remittances received (%GDP)	0.130	3.28***	
Political Globalization Index	0.676	4.59***	
Political Globalization Index ²	-0.005	-4.55***	
Social Globalization Index	-0.131	-4.19***	
Democracy (Polity2)	-0.051	-2.23**	
Civil war	0.918	2.64**	
Net foreign aid (%GDP)	-0.793	-0.29	
Unemployment rate	0.070	2.53**	
Constant	-51.185	-3.81***	
Year Dummies	Yes	Yes	
N	96		
Number of groups	13		
Wald test for joint significance (<i>p</i> -value)	0.000		
Arellano-Bond test for AR(1)	-2.21 (pr > z = 0.027)		
Arellano-Bond test for AR(2)	1.32 (pr $>$ z = 0.186)		
Sargan Test for overidentification	$24.68 \text{ (prob > chi}^2 = 0.740)$		

Note: t-statistics in brackets; *** 1% significant level; ** 5% significant level; * 10% significant level.

Source: Authors' calculations.

Furthermore we find very significant evidence that natural resources rents are positively associated with higher levels of income inequality in West Africa, confirming the results of Buccellato and Alessandrini (2009) and consistent with the resource curse effect. Our estimates indicate that a one percentage point increase in natural resources rent is associated with an increase in income inequality in West Africa by 0.09 percentage point. This provides strong evidence that natural resource dependence increases the possibility of rent capture and the creation of a rentier state which exacerbates the income inequality not only because of the rent extraction by the ruling elite but also because of limited redistribution towards the lower socioeconomics segments of the population. Mallaye *et al.* (2014) found a negative effect of oil rent but this turns positive when interacted with corruption.

Our results show that investment promotes income inequality and it is significant at the 1 percent significance level, reflecting enormous wastes, especially in public sector investments in the sub-region with many uncompleted or poorly executed 'white elephant' projects littered all over the countries. The estimates suggest that a one percentage point increase in domestic investment rate is associated with an increase in income inequality in the sub-region by 0.08 percentage point. This shows that in West Africa, the use of capital in the production of skill-intensive goods tends to be inequality increasing through the positive demand for skilled labor. Székely and Sámano (2012) do not find a significant effect of the investment rate on income inequality in Latin America while Lee *et al.* (2013) find negative significant effects for Korea just as Chaudhry and Imran (2013) did for Pakistan.

Government expenditure as a percentage of GDP, as a government policy variable (Perotti, 1992), increases income inequality, indicating that a large size of government *per se* has not reduced income inequality in West African countries but, in

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fact, appears to have done the opposite. That is, it appears to have aggravated the income inequality. Our estimates suggest that a one percentage point increase in government consumption expenditure is associated with an increase in income inequality by 0.14 percentage points. This finding confirms that of Odedokun and Round (2004) and Anyanwu (2011) for African countries. However, Dabla-Norris *et al.* (2015) find a positive effect of government spending as a percentage of GDP on income inequality.

We investigated aspects of globalization that have been implicated in the upswing in global income inequality. Our results indicate that both inward foreign direct investment and international remittances significantly increase income inequality at the 1 percent significance level, consistent with Anyanwu (2011), while trade openness increases income inequality and is significant at the 5 percent level of significance. Our results indicate that a one percentage point increase in inward FDI stock as a percentage of GDP in West Africa is associated with an increase in income inequality by 0.06 percentage points just as a one percentage point increase in personal remittances as a percentage of GDP in the sub-region is associated with a 0.13 percentage point increase in income inequality. Equally, a one percentage point increase in trade openness tends to be associated with an increase in income inequality by 0.03 percentage points. Thus, extensive overall impact of economic globalization reflects three-way complementary tendencies: both trade globalization and two forms of financial globalization (inward FDI and international remittances) are associated with increases in income inequality in West Africa. Thus, in agreement with popular concerns, trade and financial globalization are found to have income disequalizing effects in West Africa. While the IMF (2007) finds that the trade openness measure (exports plus imports as a percentage of GDP) exerts no significant effect on income inequality in a cross-section of countries, it shows that inward FDI as a percentage of GDP has significant positive effects.

We extend our estimation to include other forms of globalization, namely, political globalization and social globalization. Our results show, as in the case of income per capita, there is a non-monotonic effect of political globalization on income inequality. The level of political globalization and its squared term are statistically significant at the one percent significance level. While the level of political globalization exhibits a positive significant effect, its squared term is significantly negative, showing a Kuznets form relationship. In addition, social globalization has a significant (at the 1 percent significance level) negative effect on income inequality in West Africa. Therefore, the persistent high levels of income inequality experienced by West African countries are attributed to both country-specific policies and broad forces related to globalization.

The coefficient associated with democracy, an institutional quality variable, is negative and significant at the 5 percent significant level. A one percentage point increase in democracy index is associated with a 0.05 percentage point reduction in income inequality. This means that democracy does play an important role in reducing income inequality in West Africa.

Related to the above is the finding that civil war is positively and significantly related to income inequality in West Africa at the 5 percent significance level in conformity with the findings of Bircan *et al.* (2010). Indeed, as Bircan *et al.* (2010) indicate, the dissolution of markets and the breakdown of the rule of law during conflict and in its immediate aftermath are likely to seriously cut into the state's tax revenues while increased military expenses further restrict the government's capacity to engage in social spending and redistribution. In addition, due to wars, demographic changes, distortions in the labor market and disruptions of agricultural production seem to contribute to rising income inequality.

We also find a highly significant positive link between unemployment and income inequality in West Africa, that is, higher unemployment is associated with higher inequality. A one percentage point increase in unemployment rate in West Africa is associated with a 0.7 percentage point increase in income inequality. This result is in line with recent studies such as Checchi and Garcia-Penalosa (2010), Maestri and Roventini (2012), Claus *et al.* (2012), Dincer and Gunalp (2012) and Monnin (2014).

Factors found not to have a significant relationship with income inequality in West Africa are age dependency and net foreign aid.

6.2 Extension and Robustness Test

As an extension and robustness check, we also use the *net income Gini coefficient* (*gini_net*) (based on income after taxes and transfers) from Solt (2014) as the distributional measure and dependent variable. The results of the estimation are presented in Table 3.

The table shows that our results remain essentially unchanged both in terms of direction and significance of the coefficients, except for population density and natural resources, which turned out insignificant though with positive signs; and age dependency, which turned significant. In addition, primary education is negatively significant in affecting net income inequality in West Africa at the 10 percent significance level, indicating that not all education levels are "born equal" given that secondary

Table 3: Key drivers of net income inequality in West Africa (dynamic GMM estimates)

Variable	Coefficient	t	
Net_net_1	1.646	17.68***	
Net_net_2	-0.854	-18.63***	
Log GDP per capita	16.910	2.17**	
Log GDP per capita ²	-1.256	-2.26**	
Population density	0.667	1.37	
Primary school enrolment	-0.041	-1.86^{*}	
Secondary school enrolment	-0.050	-3.66***	
Age dependency	-0.074	-2.69**	
Natural resources rents (%GDP)	0.071	1.69	
Gross capital formation (%GDP)	0.048	2.76**	
Government consumption expenditure (%GDP)	0.091	2.12*	
Inward FDI stock (%GDP)	0.034	1.81*	
Trade openness	0.048	2.76**	
Personal remittances received (%GDP)	0.101	3.31***	
Political Globalization Index	0.652	3.70***	
Political Globalization Index ²	-0.005	-3.31***	
Social Globalization Index	-0.105	-4.39***	
Democracy (Polity2)	008	-0.31	
Civil war	1.396	4.77***	
Net foreign aid (%GDP)	-3.949	-1.14	
Unemployment rate	0.114	2.32**	
Constant	-62.499	-2.03^{*}	
Year Dummies	Yes	Yes	
N	96		
Number of groups	13		
Wald test for joint significance (<i>p</i> -value)	0.000^{***}		
Arellano-Bond test for AR(1)	-2.07 (pr > z = 0.039)		
Arellano-Bond test for AR(2)	0.98 (pr > z = 0.327)		
Sargan Test for overidentification	$22.58 \text{ (prob > chi}^2 = 0.795)$		

Note: t-statistics in brackets; *** 1% significant level; ** 5% significant level; * 10% significant level.

Source: Authors' calculations.

education is significant at the one percent level of significance. Democracy turns out not to be significant in explaining net income inequality in the sub-region.

7. Conclusion and Policy Implications

Thus far, we have shown why income inequality matters and hence why policymakers need to put high and increased focus on it so as to bring it down sustainably. We have also, unlike in previous studies, used the most comprehensive data set on market and net income inequality covering 18 West African countries over three decades to present some new, interesting stylized facts on income inequality in West Africa. Also, we have empirically assessed the impact of key domestic and external drivers of income inequality in the sub-region, using the dynamic system GMM method.

Some key findings emerge. First, we have a novel finding that shows strong support for a dynamic, non-monotonic, effect of inequality in the model, whereby higher levels of past income inequality are positively associated with current levels of income inequality, but above a certain point, higher levels of past income inequality act to reduce current levels of income inequality, holding other factors constant. Second, we find evidence of existence of the Kuznets curve in the sub-region, which proposes that inequality may rise with the initial increase in per capita income but will decline subsequently. Third, higher population density appears to be income disequalizing in West Africa. Fourth, access to secondary education (skill premium) is income equalizing

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in the sub-region. Fifth, in West Africa, age dependency appears to be income equalizing when we consider net income inequality in line with Africa's family solidarity principle. Fifth, in confirmation of the resource curse syndrome, natural resources rents are income disequalizing in West Africa. Sixth, reflecting enormous waste in investment projects in the sub-region, domestic investment promotes income equality instead of decreasing it. Seventh, government consumption expenditure increases income inequality in the sub-region, again reinforcing the story of enormous wastes in the public sector. Eight, with respect to globalization, we find that trade globalization, inward foreign direct investment and international remittances are income disequalizing while social globalization is income equalizing. A non-monotonic, Kuznets-type effect is found for political globalization. Ninth, democracy appears to be market income equalizing. And tenth, civil conflicts are income disequalizing in the sub-region.

Our empirical findings point to some key policy lessons and recommendations for the sub-region. These are discussed below.

7.1 Promotion of Inclusive Economic Development

Our results point to promoting the attainment of higher economic development (national incomes) as one of the most effective ways to achieving a relatively more egalitarian growth path. To increase per capita income, African countries must deepen macroeconomic and structural reforms to increase their competitiveness, create increasing and more quality jobs and hence increase participation in economic activity. They must also dismantle existing structural bottlenecks to private and public investment, scale up investments in hard and soft infrastructure, check rapid population growth, and increase productivity, especially in agriculture, through creating incentives and opportunities for the private sector and increasing government support to small farm holders in terms of finance, formalization of land ownership and technical advice.

7.2 Improvement of Inclusive Socio-Economic Opportunities

From our results, one of the most effective ways towards achieving relatively more egalitarian society is increased access to education. This calls for active social intervention, including targeted and high-quality education and training policies, and up-skilling, technical, vocational and entrepreneurial education aimed at increasing the supply of skilled labor. Actions to equalize opportunities in formal education need to ensure that all children acquire at least a basic level of skills necessary to participate in society and in today's global economy. As the World Bank (2005) had argued, greater access should be complemented by supply-side policies (to raise quality) and demand-side policies (to correct for the possibility that parents may under-invest in the education of their children for various reasons). Supply-side policies would include increasing teachers' incentives, enhancing the basic quality of schools' physical infrastructure, and researching and implementing teaching methods to increase the learning performance of students who do not do well when left to their own devices. On the other hand, demand-side policies would include scholarships conditional on attendance, bringing in excluded groups and to bring up those left behind through remedial education, and developing the accountability of schools and teachers to students, parents and the broader society to help ensure effective service provider behavior (World Bank, 2005; Burnett et al., 2013).

However, for higher incomes to be inclusive and income inequality reducing, they must be accompanied by policies that enhance poor people's opportunity to benefit, including targeted subsidies (high-yielding seeds, fertilizer, fuel and energy), the improvement of rural infrastructure (not just the urban ones), and the enforcement of minimum wage laws in both the public and private sectors of the economy. It will also include the creation of incentives for lowering informality by increasing the benefits of participating in the formal sector and by reducing the costs of doing so (Dabla-Norris and Inchauste, 2008), and providing the enabling environment for private sector development, especially for small and medium enterprises (SMEs).

7.3 Better Natural Resources Management

Following our finding that natural resource rents exacerbate income inequality in West Africa, international financial institutions like the African Development Bank have a critical role to play in helping these countries acquire the much-needed capacity not only to negotiate beneficial contracts and earn higher rents but also for effective management of natural resources rents and other related revenues. In particular, a new natural resources management framework is needed for better governance, sectoral

linkages, economic growth and human, capacity and infrastructure development — with strong parliamentary legislation, oversight, and representation throughout the natural resources value chain.

7.4 Redistribution of Income and Promotion of Productive Investment Practices

Government expenditure should be carried in ways which reduce inequality by redistributing of incomes through conditional cash transfer programs; by productive and equitable spending on public services, targeted subsidies, public works or other instruments for transferring incomes, goods or services, particularly to vulnerable citizens in West African countries. Evidence has shown that conditional cash transfers and expenditures (for education, for example, given our results that education is important in income equalizing) are effective safety nets and levers of redistribution (see Levy, 2006; Kanbur, 2008; Anyanwu and Erhijakpor, 2010).

Miller (2011) has shown that cash transfers in Malawi benefited both the recipients, non-recipients and local businesses given that the transfers strengthened local markets by providing a steady source of customers and cash. For a conditional cash transfer program to be truly progressive and redistributive over the long term, it must be combined with a progressive tax system where those with the highest incomes pay the largest proportion of those incomes in tax. But the starting challenging point is taking a true and reliable survey census to identify and computerize the socio-economic status of every citizen and giving each person a permanent social security card that contains relevant information (in chip form) about each person. Without that, any attempt at providing conditional cash transfers such as being planned in Nigeria would fail even before commencement since it would be subject to abuse as well as prone to political and ethnic favoritism.

Achieving government expenditure effectiveness must remain as an active goal of governments in West Africa. Adoption of high-level best practice principles to inform the development of these processes will help African governments achieve this. To reduce waste, fraud and corruption, West African countries should embrace and fully implement Transparency International's (2009) 'Integrity Pacts', that set out rights and obligations to the effect that neither side in contracts will pay, offer, demand or accept bribes, or collude with competitors to obtain the contract, or while carrying it out. At the same time, efforts to reform the fiscal system for consolidation by both the executive and legislative arms of government are imperative to avoid wastes, corruption and crowding out resources for public sector investment and employment creation.

Reducing income inequality in West Africa also calls for increased productive domestic investment, public and private. Productive and efficient domestic investment requires the development of coordinated, objective and transparent processes for decision-making based on thorough and rigorous cost-benefit analysis. Political will and good governance, strengthening accountability and transparency as well as enlarging civil society space as a 'watch dog' are critical in this direction.

Attention should be paid to both the design, implementation, and monitoring and evaluation phases of projects and programs. At the design stage, the aim should be to create achievable and quantifiable targets and to have all-stakeholder ownership through the collaboration of governments, the private sector, civil society and other development agencies. All stakeholders must follow through to ensure that projects and programs are implemented as designed. Also, stakeholders must ensure that those projects and programs are regularly monitored and evaluated against indicators established in the design phase and that are agreed on by the development partners.

7.5 Effective Management of Different Aspects of Globalization

Hausmann *et al.* (2007) have shown very strongly that 'what you export matters' for inclusive growth, hence countries 'become' what they export. The West African sub-region, like the rest of Africa, is poorly diversified, and its exports are (mostly) ubiquitous peripheral products that are exported by many other countries. While diversification into all sectors should remain an important long-term goal of African countries, the path towards increased diversification in the near future may well lie in a more empowered and diverse agricultural and other natural resources sectors. West African leaders should therefore implement policies that will regionally integrate infrastructure with institutions and incentives, legal and regulatory framework as well as financial and insurance products that could help hedge the risks implied in the development of new agricultural products (Hidalgo, 2011) and natural resources-related and linked products. And as Ulimwengu and Badibanga (2012) have amplified, the ways to boost agricultural transformation in Africa include investment in rural infrastructure, promotion of the use of yield-enhancing technologies, privatization to enhance competition in agricultural input markets, and the creation of an enabling environment.

In addition, African governments need to build adequate, better and efficient infrastructure to assist their economies not only to increase productivity in agriculture, manufacturing and service delivery, but to contribute to improvements in health and education and helping in delivering more equitable distribution of national wealth. Planning at national and regional levels with increased involvement of the private sector on a public-private partnerships model stands the chance of better success. In addition, adaptation of technology advances is a *sine qua non*.

Urgent measures are required to strengthen African countries' R&D infrastructure, developing technological innovations and altering the mind-set of its people toward better creation, acquisition, and use of technology. Innovation policies and increased R&D investments are needed in each country in addition to regional strategies (see Anyanwu, 2014b).

Effective regulation of FDI is imperative. To reduce income inequality, and in turn, to ensure that citizens have complete access to productive resources, West African countries should regulate the inflow of foreign capital to ensure labor-intensive industries are not displaced by globalization. Further, to protect against threats to individual basic rights, the government should mandate that MNCs adhere to core labor standards, as provided by the International Labor Organization (ILO). Since labor-intensive employment represents a viable channel through which job-seekers are able to realize gains in real wages and social capital and hence reduce income inequality, the protection of these industries should be a policy priority for West African countries. Remittances-receiving countries of West Africa need to develop a strategy to maximize the benefits of remittances while minimizing their negative repercussions (see Anyanwu, 2011).

Going forward, one of the key things West Africa needs in achieving inclusive and sustainable development by harnessing the positive aspects of social and political globalization will involve multi-stakeholder and multi-sectoral partnerships across borders that can combine the assets, creativity and experience of the strategic partners, leveraging their resources for people-oriented development. Such innovative, cross-border multi-stakeholder and multi-sectoral partnerships must be ones characterized by shared vision, interdependence and complementarity, joint resources mobilization and resources sharing, deepening of sub-regional integration, joint investments in human and social capital as well as physical infrastructure (especially communications and transportation) with prospects for scaling up and institutionalization, and very strong endorsement and consistent support from senior leadership. These are the basic ingredients for the success of such new strategic alliances. The key role of government under such strategic alliances is that of an enabler, providing a 'level-playing' field, embedding of social objectives in external relations, building the legal, institutional and regulatory frameworks for social and political globalization to thrive — as opposed to excessive or cumbersome regulatory barriers that stifle incentives and discourage enterprise, free exchange and harmonious co-existence.

In addition, urgent reforms to make multilateral organizations more representative, cooperative and coordination in decision-making, fairer, more balanced, equitable, participatory, democratic, accountable, transparent and coherent are needed at the level of the United Nations.

7.6 Promotion and Commitment to True Democracy

To help reduce income inequality, countries in the sub-region need to continue to improve their political and social situation and elevate their democracy from a mere electoral level to a more liberal one. What is needed, therefore, is deep introspection and political reform of the various institutions and political parties seeking to govern so as to promote a sustained commitment to democracy that will ensure the embrace and guarantee of equal citizenship, political pluralism, freedom, rule of law, political rights, general respect for others, and socio-political cum economic inclusion.

7.7 Reduction of the Incidence of Civil Wars and Peace Promotion

West African countries must implement policies to reduce the incidence of civil wars in the sub-region as well as promote effective peace and stability. They must prevent and properly manage key scenarios fueling civil wars due to oil wealth (especially rentier, repression and corruption effects) and societal fractionalization and polarization. Actions will include institutionalization of inter-ethnic elite accommodation, in which elites from rival ethnic groups are co-opted into the political system (ethnic power sharing) as a means by which to reduce coup d'états that precede wars as well as federate the different ethnic groups via a coalition of their elites (see Anyanwu, 2014c).

Finally, we believe that these complementary inclusive growth-promoting socio-economic strategies and policies will go a long way in effectively and sustainably reducing income inequality in West Africa.

References

Alderson, A. S. and F. Nielsen (2002), 'Globalization and the Great U-turn: Income Inequality Trends in 16 OECD Countries', *American Journal of Sociology*, Vol. 107, pp. 1244–99.

Alesina, A. and D. Rodrik (1994), 'Distributive Policies and Economic Growth', *Quarterly Journal of Economics*, Vol. 108, pp. 465–90.

Alesina, A., R. Di Tella and R. MacCulloch (2004), 'Inequality and Happiness: Are Europeans and Americans Different?', *Journal of Public Economics*, Vol. 88, No. 9, pp. 2009–42.

Anyanwu, J. C. (2011), 'International Remittances and Income Inequality in Africa', *Review of Economic and Business Studies*, Vol. IV, Issue 1, pp. 117–48.

Anyanwu, J. C. (2014a), 'Determining the Correlates of Poverty for Inclusive Growth in Africa', *European Economic Letters*, Vol. 3, No. 1, pp. 12–17.

Anyanwu, J. C. (2014b), 'Factors Affecting Economic Growth in Africa: Are There any Lessons from the Soaring Dragon (China)?', *African Development Review*, Vol. 26, No. 3, pp. 468–93.

Anyanwu, J. C. (2014c), 'Oil Wealth, Ethno-Religious-Linguistic Fractionalization and Civil Wars in Africa: Cross-Country Evidence', *African Development Review*, Vol. 26, No. 2, pp. 209–36.

Anyanwu, J. C. and A. E. O. Erhijakpor (2010), 'Do International Remittances Affect Poverty in Africa?', *African Development Review*, Vol. 22, No. 1, pp. 51–91.

Barro, R. J. (2000), 'Inequality and Growth in a Panel of Countries', *Journal of Economic Growth*, Vol. 5, No. 1, pp. 5-32.

Behrman, J. R., N. Birdsall and M. Székely (2003), 'Economic Policy and Wage Differentials in Latin America', Working Paper No. 29, Center for Global Development, Washington, DC.

Berg, A. and J. Ostry (2011), 'Inequality and Unsustainable Growth: Two Sides of the Same Coin?', IMF Staff Discussion Note 11/08, International Monetary Fund, Washington, DC.

Berthélemy, J-C. (2006), 'Bilateral Donors' Interest vs. Recipients' Development Motives in Aid Allocation: Do All Donors Behave the Same?', *Review of Development Economics*, Vol. 10, pp. 179–94.

Bircan, C., T. Brück and M. Vothknecht (2010), 'Violent Conflict and Inequality', IZA Discussion Paper No. 4990, June.

Bjørnskov, C. (2010), 'Do Elites Benefit from Democracy and Foreign Aid in Developing Countries?', *Journal of Development Economics*, Vol. 92, No. 2, pp. 115–24.

Boone, P. (1996), 'Politics and the Effectiveness of Foreign Aid', European Economic Review, Vol. 40, pp. 289–329.

Buccellato, T. and M. Alessandrini (2009), 'Natural Resources: A Blessing or a Curse? The Role of Inequality', Discussion Paper 98, SOAS, University of London, October.

Calderon, C. and A. Chong (2001), 'External Sector and Income Inequality in Interdependent Economies Using a Dynamic Panel Data Approach', *Economic Letters*, Vol. 71, Issue 2, pp. 225–31.

Calderón, M. C., A. Chong and M. Gradstein (2006), 'Foreign Aid, Income Inequality, and Poverty', Inter-American Development Bank Working Paper #547, October.

Campante, F. and Q.-A. Do (2007), 'Inequality, Redistribution, and Population', Faculty Research Working Papers Series, RWP07-046, John F. Kennedy School of Government, Harvard University, October.

Chan, S. (1989), 'Income Inequality among LDCs: A Comparative Analysis of Alternative Perspectives', *International Studies Quarterly*, Vol. 33, No. 1, pp. 45–65.

Chase-Dunn, C. (1975), 'The Effects of International Economic Dependence and Inequality: A Cross-national Study', *American Sociological Review*, Vol. 40, pp. 720–38.

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Chaudhry, I. S. and F. Imran (2013), 'Does Trade Liberalization Reduce Poverty and Inequality? Empirical Evidence from Pakistan', *Pakistan Journal of Commerce and Social Sciences*, Vol. 7, No. 3, pp. 569–87.

Checchi, D. and C. Garcia-Penalosa (2010), 'Labour Market Institutions and the Personal Distribution of Income in the OECD', *Economica*, Vol. 77, No. 307, pp. 413–50.

Chong, A., M. Gradstein and C. Calderon (2009), 'Can Foreign Aid Reduce Income Inequality and Poverty?', *Public Choice*, Vol. 140, No. 1/2, pp. 59–84.

Claus, I., J. Martinez-Vazquez and V. Vulovic (2012), 'Government Fiscal Policies and Redistribution in Asian Countries', ADB Economics Working Paper Series No. 310, Asian Development Bank, Manila.

Cojocaru, A. and M. F. Diagne (2014), 'Should Income Inequality Be Reduced and Who Should Benefit?' Redistributive Preferences in Europe and Central Asia, Policy Research Working Paper 7097, November.

Corak, M. (2013), 'Income Inequality, Equality of Opportunity, and Intergenerational Mobility', IZA Discussion Paper No. 7520, July.

Crenshaw, E. and A. Ameen (1994), 'The Distribution of Income across National Populations: Testing Multiple Paradigms', *Social Science Research*, Vol. 23, pp. 1–22.

Dabla-Norris, E. and G. Inchauste (2008), 'Informality and Regulations: What Drives the Growth of Firms?', IMF Staff Papers, Vol. 55, No. 1, pp. 50–82.

Dabla-Norris, E., K. Kochhar, N. Suphaphiphat, F. Ricka and E. Tsounta (2015), 'Causes and Consequences of Income Inequality: A Global Perspective', IMF Staff Discussion Note SDN/15/13, June.

Deaton, A. and C. Paxson (1997), 'The Effects of Economic and Population Growth on National Saving and Inequality', *Demography*, Vol. 34, pp. 97–114.

Dincer, O. C. and B. Gunalp (2012), 'Corruption and Income Inequality in the United States', *Contemporary Economic Policy*, Vol. 30, No. 2, pp. 283–92.

Drazen, A. (2007), 'Discussion of 'Are Aid Agencies Improving?' by William Easterly', *Economic Policy*, Vol. 22, pp. 668–673.

Dreher, A. (2006), 'Does Globalization Affect Growth? Evidence from a New Index of Globalization', *Applied Economics*, Vol. 38, No. 10, pp. 1091–110.

Dreher, A., N. Gaston and P. Martens (2008), Measuring Globalization: Gauging its Consequence, Springer, New York.

Feenstra, R. C. and G. H. Hanson (1996), 'Globalization, Outsourcing, and Wage Inequality', *American Economic Review*, Vol. 86, No. 2, pp. 240–45.

Gradstein, M. and B. Milanovic (2004), 'Does Liberté = Egalité? A Survey of the Empirical Links between Democracy and Inequality with Some Evidence on the Transition Economies', *Journal of Economic Surveys*, Vol. 18, No. 4, pp. 515–37.

Hausmann, R., J. Hwang and D. Rodrik (2007), 'What You Export Matter', *Journal of Economic Growth*, Vol. 12, No. 1, pp. 1–25.

Herzer, D. and P. Nunnenkamp (2012), 'The Effect of Foreign Aid on Income Inequality: Evidence from Panel Cointegration', Kiel Working Paper No. 1762, March.

Hidalgo, C. A. (2011), 'Discovering Southern and East Africa's Industrial Opportunities', Economic Policy Paper Series, January, The German Marshall Fund of the United States, Washington, DC.

IMF (2007), World Economic Outlook: Globalization and Inequality, October, IMF, Washington DC.

IMF (2014), 'Fiscal Policy and Income Inequality', IMF Policy Paper, 23 January, available at: http://www.imf.org/external/pp/ppindex.aspx

Jaumotte, F., S. Lall and C. Papageorgiou (2013), 'Rising Income Inequality: Technology, or Trade and Financial Globalization?', *IMF Economic Review*, Vol. 61, No. 2, pp. 271–309.

Kanbur, R. (2008), 'Poverty and Distribution: Twenty Years Ago and Now', paper presented at the 3rd African Economic Conference, African Development Bank, Tunis, November.

Knight, J. B. and R. H. Sabot (1983), 'Educational Expansion and the Kuznets Effect', *The American Economic Review*, Vol. 73, No. 5, pp. 1132–36.

Kumhof, M., C. Lebarz, R. Rancière, A. W. Richter and N. A. Throckmorton (2012), 'Income Inequality and Current Account Imbalances', IMF Working Paper 12/08, International Monetary Fund, Washington, DC.

Kuznets, S. (1955), 'Economic Growth and Income Inequality', American Economic Review, Vol. 45, (March), pp. 1–28.

Lecaillon, J., F. Paukert, C. Morrisson and D. Germidis (1984), *Income Distribution and Economic Development: An Analytical Survey*, International Labour Office, Geneva.

Lee, H-Y., J. Kim and B. C. Cin (2013), 'Empirical Analysis on the Determinants of Income Inequality in Korea', *International Journal of Advanced Science and Technology*, Vol. 53, April.

Levy, S. (2006), *Progress against Poverty: Sustaining Mexico's Progresa-Opportunidades Program*, Brookings Institution Press, Washington DC.

Li, H., L. Squire and H. Zou (1998), 'Explaining International and Intertemporal Variations in Income Inequality', *The Economic Journal*, Vol. 108, pp. 26–43.

Liu, Q. and Lawell, C-Y. C. L. (2015), 'The Effects of Innovation on Income Inequality in China', October, available at: http://www.des.ucdavis.edu/faculty/Lin/China_innovation_inequality_paper.pdf

Maestri, V. and A. Roventini (2012), 'Inequality and Macroeconomic Factors: A Time-series Analysis for a Set of OECD Countries', Working Paper 34/2012, University of Verona.

Mahmood, S. and Z. M. Noor (2014), 'Human Capital and Income Inequality in Developing Countries: New Evidence Using the Gini Coefficient', *Journal of Entrepreneurship and Business*, Vol. 2, Issue 1, pp. 40–48.

Mallaye, D., T. U. Yogo, and G. T. Timba (2014), 'Oil Rent and Income Inequality in Developing Economies: Are They Friends or Foes?', available at: https://editorialexpress.com/cgi-bin/conference/download.cgi?db_name=CSAE2014&paper_id=197

Marshall, M. G. (2013), Major Episodes of Political Violence (MEPV) and Conflict Regions, 1946–2012, Center for Systemic Peace, Vienna, 30 April.

Melamed, C. (2011), Inequality: Why it Matters and What Can Be Done, ActionAid International, April.

Midlarsky, M. (1982), 'Scarcity and Inequality: Prologue to the Onset of Mass Revolution', *Journal of Conflict Resolution*, Vol. 26, pp. 3–38.

Midlarsky, M., and K. Roberts (1985), 'Class, State, and Revolution in Central America: Nicaragua and El Salvador Compared', *Journal of Conflict Resolution*, Vol. 29, pp. 163–93.

Milanovic, B. (2000), 'The Median-Voter Hypothesis, Income Inequality, and Income Redistribution: An Empirical Test with the Required Data', *European Journal of Political Economy*, Vol. 16, pp. 367–410.

Milanovic, B. (2005), 'Can We Discern the Effect of Globalization on Income Distribution? Evidence from Household Surveys', *The World Bank Economic Review*, Vol. 19, pp. 21–44.

Miller, C. M. (2011), 'Cash Transfers and Economic Growth: A Mixed Methods Analysis of Transfer Recipients and Business Owners in Malawi', *Poverty and Public Policy*, Vol. 3, No. 3, Article 3.

Mocan, H. N. (1999), 'Structural Unemployment, Cyclical Unemployment, and Income Inequality', *Review of Economics and Statistics*, Vol. 81, pp. 122–34.

Monnin, P. (2014), 'Inflation and Income Inequality in Developed Economies', CEP Working Paper 2014/1, May.

Ncube, M., J. C. Anyanwu and K. Hausken (2014), 'Inequality, Economic Growth and Poverty in the Middle East and North Africa (MENA)', *African Development Review*, Vol. 26, No. 3, pp. 435–53.

Nissanke, M. and E. Thorbecke (2006), 'Channels and Policy Debate in the Globalization–Inequality–Poverty Nexus', *World Development*, Vol. 34, No. 8, pp. 1338–60.

Odedokun, M. O. and J. I. Round (2004), 'Determinants of Income Inequality and its Effects on Economic Growth: Evidence from African Countries', *African Development Review*, Vol. 16, No. 2, pp. 287–327.

Okojie, C. and S. Abebe (2006), *Inequality in Sub-Sahara Africa: A Synthesis of Recent Research on the Levels, Trends, Effects and Determinants of Inequality in its Different Dimensions*, Overseas Development Institute, London.

Ostry J. D., A. Berg and C. G. Tsangarides (2014), 'Redistribution, Inequality, and Growth', IMF Staff Discussion Note SDN/14/02.

Park, K. H. (1996), 'Educational Expansion and Educational Inequality on Income Distribution', *Economics of Education Review*, Vol. 15, pp. 51–58.

Perotti, R. (1992), 'Fiscal Policy, Income Distribution, and Growth', Working Paper 636, Columbia University, November.

Persson, T. and G. Tabellini (1991), 'Is Inequality Harmful for Growth? Theory and Evidence', NBER Working Papers 3599.

Pham, T. H. H. (2015), 'Income Inequality and Foreign Aid', Laboratoire d'Economie et de Management Nantes-Atlantique (LEMMA) Working Paper, 2015/13.

Piketty, T. (2014), Capital in the Twenty-First Century, Harvard University Press, Cambridge, MA.

Rajan, R. G. (2010), Fault Lines: How Hidden Fractures Still Threaten the World Economy, Princeton University Press, Princeton, NJ.

Saidon, R., Z. Yusop, N. W. Ismail and L. S. Hoo (2013), 'Sectoral Foreign Aid and Income Inequality', *International Journal of Economics and Finance*; Vol. 5, No. 9, pp. 117–22.

Seneviratne, D. and Y. Sun (2013), 'Infrastructure and Income Distribution in ASEAN-5: What Are the Links?', IMF Working Paper, WP/13/41, February.

Shafiullah, M. (2011), 'Foreign Aid and its Impact on Income Inequality', *International Review of Business Research Papers* 7, pp. 91–105.

Solt, F. (2014), 'The Standardized World Income Inequality Database', Working Paper, SWIID Version 5.0, October.

Stolper, W. and P. A. Samuelson (1941), 'Protection and Real Wages', Review of Economic Studies, Vol. 9, No. 1, pp. 58-73.

Sturm, J-E. and J. De Haan (2015), 'Income Inequality, Capitalism, and Ethno-Linguistic Fractionalization', *American Economic Review Papers and Proceedings*, Vol. 105, No. 5, pp. 593–97.

Székely, M. and C. Sámano (2012), 'Did Trade Openness Affect Income Distribution in Latin America? Evidence for the Years 1980–2010', UNU-WIDER Working Paper No. 2012/03, January.

Transparency International (2009), The Integrity Pact: A Powerful Tool for Clean Bidding, Transparency International, Berlin.

Ulimwengu, J. and T. Badibanga (2012), 'The Sophistication and Diversification of the African Agricultural Sector: A Product Space Approach', IFPRI Discussion Paper 01156, West and Central Africa Office, January.

UN (2013), Inequality Matters: Report of the World Social Situation 2013, ST/ESA/345, United Nations, New York.

UNDP (2013), *Humanity Divided: Confronting Inequality in Developing Countries*, United Nations Development Program, New York, November.

World Bank (2005), World Development Report 2006: Equity and Development, World Bank, Washington, DC.

Zhang, X. and K. Zhang (2003), 'How Does Globalisation Affect Regional Inequality within A Developing Country? Evidence from China', *Journal of Development Studies*, Vol. 39, No. 4, pp. 47–67.