The relationship between inclusive growth, inequality and poverty in Africa

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Abstract. *In the framework of this work, our attention focuses on explaining how economic progress in Africa is not transformed into a development. Economic growth in Africa has been accompanied by growing inequalities of all kinds, while much of the population continues to live in landlocked areas and condemned to marginalization and excluding. Particularly, this work deals verify the relationship between inclusive growth, inequality, poverty and human development in Africa. We can remind that the combined policymaker's efforts have achieved significant progress in terms of achieving the Millennium Development Goals (MDGs), particularly in the fields of education, health and combating against poverty.*
Firstly, we put forward the triangular relationship between inequality, poverty and growth. Secondly we estimate a structural model showing a negative relationship between inequality and economic growth for 33 African countries for the period 1986-2010.

Keywords: Africa, Inclusive Growth, Inequality, Poverty.

JEL Classification: C33, D63, I32, O40, O55.

1. Introduction

The questions on the development of a country are thus: what happened to poverty? What happened to unemployment? What happened to inequality? If one of these crucial problems worsened, it would be odd to call "development" a result, even though per capita income doubled.

Given the increasing poverty in the last two decades, especially in sub-Saharan Africa countries, international organizations and policy makers start to find appropriate policies to reduce it. Indeed, the first of the Millennium Development Goals set by the United Nations is to reduce by half the percentage of the world population living in absolute poverty (in 2015). The world has made significant progress in reducing extreme poverty. While Sub-Saharan Africa is still lagging behind. According to projections from the World Bank, is unlikely that Sub-Saharan Africa reach the target at the end of 2015. Similarly, the World Bank and the International Monetary Fund have launched a joint initiative which puts the fight against poverty at the heart of development policies.

Inequality is an important factor not to be neglected in the fight against poverty. For Bourguignon (2004), the reduction of inequality, it not only helps to reduce poverty through redistributive effect, but again, the decline causes an acceleration of the rhythm of poverty reduction because the elasticity of poverty rate through income depends closely and negatively on the degree of income inequality. In this regard the question deserves to be asked is a triptychs interaction between economic growth, inequality and poverty.

The gains of growth are never evenly distributed and even less in favor of the poorest which has led many authors to pose the question "do rising tides lift all boots?" A first theoretical foundation response to this question was the well-known hypothesis of Kuznets (1955).

In 2005, the UNDP report considered inequality as the main cause of human underdevelopment, because of its multiplier effect on economic growth, emphasizing the need to orientate growth to the poor. Economic growth and changes in inequality are important on the level of poverty.

During the last decade, international institutions and international financial and economic consultation groups has reported extensively on African countries. Specifically, they cited the major economic performances in this continent and its immense potential in natural resources and in terms of other factors of economic growth.

"The potential of Africa is vast. While the African economies as a group are unlikely to challenge the BRICs[1] (…), they could deliver significant growth and higher incomes over next several decades" (Goldman Sachs Asset Management, 2010).

"Improving the economic performance achieved during the last decade has not given a reduction of unemployment or a reduction of poverty or a significant progress towards achieving the Millennium Development Goals (MDGs)"[2].

Based on the main findings of these reports on Africa, we wanted to study the link between inclusive growth, poverty and inequality.

2. The trilogy interaction between growth, inequality and poverty

2.1. Theoretical background

The last two decades have recognized a considerable evolution of economic growth, but unfortunately, the phenomenon of poverty still persists in many countries, especially in African countries.

Dollar and Kraay (2002) argue that growth is both necessary and sufficient to reduce poverty. On the other hand, many economists (Bourguignon, 2004; Milanovic, 2002) believe that economic growth is necessary but not sufficient condition, since other factors like institutional factors and political factors also play a crucial role in the fight against poverty.

The rapid growth would not allow by itself, reduce poverty. Hence, the importance of development policies and growth, oriented to a social equity, requires an inclusive and pro-poor economic growth.

"Rapid growth is unquestionably necessary for substantial poverty reduction, but for this

growth to be sustainable in the long run, it should be broad-based across sectors, and inclusive of the large part of the country's labor force … The relative pro-poor approach is mainly interested in the welfare of the poor while inclusive growth is concerned with opportunities for the majority of the labor force, poor and middle-class alike" (World Bank, 2009, p. 1).

According to the World Bank, inclusive growth and wider than pro-poor growth:

"Inclusive growth refers both to the pace and pattern of growth, which are considered interlinked, and therefore in need to be addressed together. Traditionally, poverty and growth analyses have been done separately. This paper describes the conceptual elements for an analytical strategy aimed to integrate these two strands of analyses, and to identify and prioritize the country-specific constraints to sustained and inclusive growth. Encouraging broad-based and inclusive growth does not imply a return to Government-sponsored industrial policies, but instead puts the emphasis on policies that remove constraints to growth and create a level playing field for investment" (World Bank, 2009, pp. 1-2).

Several studies have provided the inequality a central place in the study of the relationship between economic growth and poverty. Indeed, more the distribution is uneven, less growth benefit the poor (UNDP, 2005), thus UNDP insists that economic growth is an important factor in a significant reduction of poverty but insufficient, given the role of inequality.

Be interested in the link between growth and inequality involves analyzing the impact of income distribution on economic growth. Thus, to measure the reduction of poverty must

quantify and compare the contributions of growth (income factor) and the redistribution of wealth (inequality factor) to the variation of poverty. In other terms, it is to study the effectiveness of development strategies on the incidence of poverty. Goh & al. (2009) have been clarifying the debate by providing analysis of existing relationships between the three variables: growth, inequality and poverty.

The question of development is mainly related to the reduction of absolute poverty. It is shown that the variation of poverty is a function of the growth and distribution. This explains why the poverty reduction essentially is given by the reduction of inequality and high economic growth.

Economic growth is a source of general prosperity that provides more opportunities for a better living environment that would require the entire population benefits. In particular, economic growth should benefit segments of the population who are most in needs, who are the poor. The inequality affects poverty because it determines the distribution of wealth in general and income in particular.

Several economists, after finding that income inequality was down since the 19th century in developed countries and became less than that of developing countries, were interested in the link between growth and inequality, however, the formulation of this relationship was asked by Kuznets (1955), which showed that this situation is related to the reduction in the share of the agricultural sector with low productivity traditional sector, and its replacement by urban activities with high productivity. Kuznets concludes that income inequality tends to increase during the first phases of growth, to stabilize and then finally to decline during the subsequent phases until reaching the lowest level. We obtain a stylized Kuznets curve which retraces the relationship between the Gini coefficient and per capita GNP.

Kuznets considers that the economy is composed of two sectors, the agricultural sector (rural), characterized by low income and low productivity caused by labor increase, and the industrial sector (urban) where productivity and income is high characterized by a labor shortage. However, the particular shape of this curve indicates that economic development is reflected in radical disruption of social structures. Hence, differences in income and living standards very marked were held with triggering this process between the industrial areas and rural areas. This development differential between agricultural and non-agricultural sectors causes a transfer of the labor force with low productivity sectors to high productivity sectors, which translates to an increase in inequalities of income generated by a net of inequality worsening trend between those who capable to take advantage of economic development and those that have not.

Advanced results by Kuznets, showed that the distribution of income between individuals is more unequal in developing countries than in developed countries. Indeed, the intersectoral inequality is generally intense in the developing countries, gives rise to an increase in average income of the urban population compared to the rural population, this differential is considered to be the main cause of inequality, especially in developing countries.

It is to note that the concepts of inequality and poverty are closely related. Indeed, unequal distribution of income between poor contributes to poverty in a society.

2.2. The empirical literature on growth, poverty and inequality

The impact of economic growth in reducing inequality and poverty is a source of empirical investigation.

Meng, Gregory and Wang (2005) estimated a relationship between the growth of average income and the proportion of the population below the poverty line. These authors used panel data. They concluded that there is a negative relationship between average income and the poverty rate. They reached a conclusion that the increase in average income of 1% causes a reduction of poverty from 2.61%.

Economic growth is an actor needed to reduce poverty. But there are other factors that have influences on lowering poverty as equal income distribution.

Ravallion and Chen (1997) found that inequality has a very important role in poverty reduction. These authors concluded that countries with a more equitable distribution of national resources have a more rapid reduction in the percentage of population living below the poverty line.

They developed econometric tests to validate the relationship growth, inequality and poverty. They submitted that income inequality leads to slower at the negative effect of growth on poverty reduction. They also showed that the reduction of the proportion of the population living below the poverty line in countries that have a strong social inequality is largely explained by the rise in per capita income in these countries. This reduction in poverty rose to 10% if countries registered growth in living standards and a reduction of inequality. In the event that the average income decline, the poverty rate and also inequality increases.

Bourguignon (2004) concluded that inequality plays a very important role in the fight against poverty. He found that the decline of inequality leads to a reduction in poverty rates through a redistribution policy. This redistribution also generates a faster pace of poverty reduction. In addition, it represents a complementary element of growth in order to achieve a decrease in long-term poverty level read. He has shown that economic growth is a driving force reducing the poverty rate.

Figure 1. *From inequality to growth reduction*
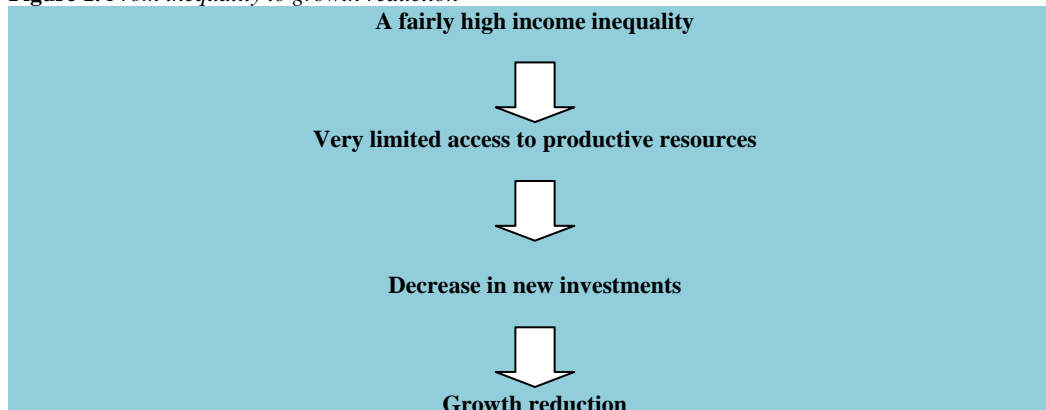
Source: Authors conception.

3. Inequality and Economic Growth in Africa: empirical verification

In this subsection we will present the model, methodology of the estimate, the results and interpretations of our econometric analysis of the relationship between inequality and economic growth for a sample of 33 African countries[3].

a. Model Presentation

Our empirical work is based on the model of Mankiew, Romer and Weil (1992) and Forbes (2000). The choice of this model is justified by the fact that it was used widely by recent empirical work on the determinants of economic growth. Determinant variables included in the specifications are deducted from both theoretical and empirical literature on the determinants of economic growth.

The estimates are based on the following function:

$$GROWTH_{it} = \alpha + \beta GDP_{90it} + \gamma GINI_{it} + \delta INVEST_{it} + \theta EDU_{it} + \vartheta G_{it} + \varepsilon_{it}$$

where, "i" indicates the countries (i = 1, 2,..., N) and "t" represents the time (t = 1,…, T),

GROWTH: the average annual growth of the GDP per capita calculated in constant dollars of 2005; GDP_{90}: the logarithm of the GDP per capita calculated in constant dollars of 2005 delayed by one period; *GINI*: the logarithm of Gini coefficient; *INVEST*: the logarithm of the average yearly ratio of the investment in relation to the GDP; *LEDU*: the logarithm of the secondary schooling rate; *G*: the logarithm of the ratio of public expenditures in relation to GDP; $(\beta, \gamma, \delta, , \theta, \vartheta,)$: vector of the coefficients to estimate and ε_{it}: is the error term.

All these variables are extracted from the yearly data of the World Bank data base (WDI, July 2015), except for the data concerning the Gini index which are extracted from Ortiz and Cummins (2011).

This work focuses on growth in the period from 1986 to 2010. Because the database of Gini coefficients is limited by five-year data, the average of each variable is taken along a period of five years.

b. Methodology of estimations

Our study is based on two dimensions namely: the temporal and individual dimension. To do this, we will refer to the static panel techniques to estimate the equation that links economic growth and their determinants.

The estimation of this relationship depends on specification tests which correspond to Fisher tests. This is to determine the way in which our model must be specified, if the panel hypothesis can be accepted. We shall find that our analysis is then rests on the notion of homogeneity of our basic model parameters. The specification tests thus intended to make a diagnosis of the possible need to integrate heterogeneous dimension and how this heterogeneity should be specified. If heterogeneity is detected only at constant level, this model with individual effects must be estimated using within techniques if these constants are fixed or by the method of generalized least squares (GLS) if these effects are random. To find out which model among the models with random effects and fixed effects should we retain. We will use the Hausman (1978) standard specification test.

The estimates of static relationships that describe the impact of inequality on economic growth requires as a first step to check the homogeneous or heterogeneous specification data generating process. Based on our results, we note that there are special characters for each country in our sample. Whence, this model can be specified by a panel with individual-effect. These individual effects are fixed or random.

The identification between the two methods of estimation within and GLS requires the application of Hausman test. The Hausman specification test is a general test, which can be applied to award between fixed and random effects. We find that the p-value of Hausman test is below the 5% threshold. Therefore, the fixed effects model is the most appropriate.

To detect the problem of heteroscedasticity, we apply the Breush-Pagan test. This test allows us to detect an intra-individual heteroscedasticity, which assumes different variances between the error terms of the same individual.

The results of Breush-Pagan test lead us to reject the null hypothesis and indicate the presence of an intra-individual heteroscedasticity problem between errors. We need to consider the problem of heteroscedasticity in our estimates. We had recourse to the Generalized Least Squares method to address this problem.

Beck and Katz (1995) have demonstrated that Generalized Least Squares method tends to overestimate the significance of the coefficients. We opt for the "Panel Corrected Errors Standar" method proposed by Beck and Katz (1995). This latter corrects the problem of heteroscedasticity whilst producing more robust results. The results of this estimation are presented in the following table:

Table 1. *The results of the econometric regression Endogenous variable is GROWTH*

GDP$_{90}$	GINI	INVEST	EDU	G	C	Hausman test	Breush-Pagan test
-0,016 **	-0,089 *	0,118 *	0,065 *	-0,009	-0,039	15,32 *	26,19*

* Significant at 1%; ** Significant at 5%; *** Significant at 10%.

The results show that our estimate has a satisfactory quality for the equation that seeks to explain the growth rate. The coefficient of initial real GDP per capita is negative and statistically significant. Which confirms the economic theory of conditional convergence, where countries with low incomes per capita have higher growth rates than richer countries.

The coefficient measuring inequality is negative, as found in most studies examining the relationship between inequality and growth and it is significant at the 1%. Inequality plays a crucial role in determining the average growth rate. An increase in the Gini coefficient by 1% leads to a decrease in the average rate of annual growth of 0,089% over the five years that follow.

The coefficient of the variable "investment" is positive and statistically significant, which is consistent with results of the neoclassical growth model, which present the positive effect of the accumulation of physical capital in the development of nations.

The sign of the education variable, which identifies the role of the quality of human capital, is positive and the same as the expected sign in our group of countries. We may find that the indicator of human capital affects growth positively, confirming the important role of education as an engine of economic development.

The negative sign of the variable public expenditure as percentage of GDP is expected, thanks to the role of non-productive public spending in developing countries.

Conclusions

The establishment of inequality reduction policies seems necessary (Cling et al., 2004). Of such policies generally have the effect of reinforcing the decrease of poverty. In this respect, we can conclude that rapid poverty reduction essentially comes through strong economic growth and a significant reduction in inequality.

We also overflew several theoretical axes surrounding the relationship between inequality and growth. We validate empirically our work; we carried out several conclusions, based on estimates from panel data for the case of the African continent. We were found that the inequality affects economic growth in a negative way.

In fact, improving the quality of economic growth is simply a necessary condition, but not sufficient for the realization of human development. The latest report (2012) of the Africa Progress Panel noted that in addition to employment, Africans also require equity and justice so that the effect of growth on the population is sustainable.

Notes

[1] Brazil, Russia, India and China.

[2] (CEA et UA, 2011) translation of authors.

[3] Algeria, Botswana, Burkina Faso, Burundi, Cameroon, Cote d'Ivoire, Djibouti, Egypt, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Senegal, Sierra Leone, South Africa, Tanzania, Tunisia, Uganda, Zambia.

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