

Rent Seeking Opportunities and Income Inequality in Africa

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Abstract: *This paper examined the impact of rent seeking opportunities on income inequality in 31 African countries, which covers the period of 1990 to 2005, using Static Panel and Pool Mean Group (PMG) econometric methods. Rent seeking occurs when an economic agent strive for the maximization of his gains, or to obtain an income transfer usually from government or its agents without partaking in the production of such goods or services. The study used Bureaucratic quality and Corruption Indices as a proxy for rent seeking while income inequality was denoted by Gini coefficient estimates obtained from Standardized World Income Inequality version 4 (SWII-V4) database. The result showed that rent seeking is positively related to income inequality in African countries when bureaucratic quality was used as a proxy of rent seeking. However, the results was statistically insignificant when corruption was used as a proxy of rent seeking.*

Keywords: *Rent Seeking; Income Inequality; Panel Econometrics; Africa.*

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I. Introduction

With the introduction of global corruption index, rent seeking is increasingly becoming an important area of study in the field of economics. Rent seeking involves all forms of regulations and restrictions on economic activities by government and people, which may give rise to illegal rent activities that may take the form of black markets, bribery, corruption and smuggling (Krueger 1974). The increasing pressure by international agencies for transparency and efficiency in management of national resources, especially in middle and low income countries increases the studies of rent seeking opportunities in Africa (Abed & Gupta, 2002). However, rent seeking opportunities have also been found in developed countries (Spinesi, 2009).

Studies on the rent seeking opportunities and its impact on income inequality has grown in importance in the light of increasing rate of rent seeking opportunities in the world economy. However, literature emerged with contradictory conclusions about the effect of rent seeking on income inequality. While some reported its negative impact on income inequality (Iqbal & Daly, 2014), others reported its positive effect on income inequality (Dobson & Antonio, 2010). Meanwhile, it is established in the literature that ineffective and less efficient institutions in the developing economies encourages rent seeking opportunities in both the private and public sectors in the continent.

The rent seeking opportunities usually emerged in the process of the creation of artificial rules and regulations that aimed at protecting existing businesses as well making it difficult for the new ones. Consequently, the rent seeking opportunities may increase the cost of running the businesses, elongate the processes of registering a new business, imposing unnecessary rules and regulations. Nonetheless, rent seeking activities may discourage the flow of Foreign Direct Investment (FDI), facilitates the emergence of inefficient firms as well as distorting the economic growth and development of the region (Go, Nikitin, & Wang, 2007).

The purpose of this paper is to examine the effect of rent seeking opportunities on income distribution in African countries. In line with the literature, this study sees rent seeking as all forms of regulations and restrictions on economic activities by government and people, which may give rise to illegal rent seeking activities that may take the form of black markets, bribery, corruption and smuggling (Krueger, 1974). The government executives, legislatures, judiciary, bureaucrats and law enforcement agencies have found to be the major actors that provide opportunities as well as facilitates the rent seeking activities. The officials that runs the aforementioned institutions preserved rent seeking activities and persist in creating new avenues for such activities to take place, thereby making themselves and their associates more richer and richer at the expense of the mass of the people who are becoming poorer and poorer (Iqbal & Daly, 2014).

The outcome of this study has contributed to the available empirical evidence on the relationship between rent seeking and income inequality in Africa, a continent that have a higher level of rent seeking opportunities in the whole world. As most studies on this issue examine rent seeking impact on economic growth, this study is among the few ones that examined the impact of rent seeking on income distribution in Africa. The study also made important contribution in methodology and data, as it used two different econometrics methods for robustness check. Unlike previous studies that used either static panel data method, Generalized Method of Movement (GMM) or Ordinary Least Square (OLS) methods this study used both static panel method and Pool Mean Group (PMG) estimators for robust estimation (Pesaran et al., 2010). The PMG

estimators will be used to assess the long run relationship and test the coefficient restriction of homogeneous long run coefficient between rent seeking and income inequality in Africa.

To achieve the aim of this study, the remaining work is organized as follows. Section two reviewed the relevant literatures on rent seeking and its effect on income inequality. Section three discussed the methodology and data used in the study. Section four presented results and discussion of the study. Finally, the findings, and conclusion were discussed in section five.

II. Related Literature

The idea of rent seeking was introduced by Tullock (1964) and later developed by Anne O. Krueger (1974). Tullock was of the view that the welfare lost to the society was underestimated as a result of rent seeking activities, thus the cost of accessing the rents is included in the actual cost of rent. According to Tullock the social cost is the rectangle rather than the deadweight lost triangle. Therefore, he defined the rent seeking as the expenditure in pursuit of monopoly position. Leibenstein (1966) improved on the existing studies, in his 'X-efficiency' hypothesis he referred to rent seeking as "efficiency loss due to absence of competition in land market".

In a related literature, Del Rose (2009) sees rent seeking as a phenomena where economic agent access transfer often from government. This may include all the cost and efforts that agent spent to obtain the artificial transfer. Rent seeking could also be defined as the resources spend on political lobbying for the purpose of extracting more additional resources from the existing wealth without creating additional wealth, which may lead to inefficient allocation of resources, decrease in productivity and induce unequal distribution of income in the society (Iqbal & Daly, 2014), Gyimah-brempong, (2002] also defined rent seeking as an attempt to obtain an economic rent by manipulating the socio-political environment in which business activities occur rather than creating new wealth.

In this regard, the theoretical literature on rent seeking have proposed various channels that explained the concept of rent seeking and its impact on macroeconomic variables. Krueger (1974) presented the explanation of rent seeking activities based on quantitative restrictions on international trade, individuals and groups that will be competing for that rent from international trade, which may results in various forms of legal and illegal rent seeking opportunities. Krueger argued that with quantitative restrictions on imports and introduction of imports license individuals and cooperate organizations will deploy time and resources in competing for import license through all means: lobbying, bribery, corruptions etc. Murphy et al (1993) perspective differs from that of Krueger in theoretical foundation. They were of the view that rent seeking activities inherently have increasing return characteristics. Moreover, Murphy et al (1993) take the argument further as to how public sector rent seeking opportunities discourages innovations, thereby negatively affecting economic growth and income distribution.

In a related empirical literature, TLi, Xu, & Zou, (2000) and Hendriks et al. (1998) argued that as rent seeking have a decreasing function to economic growth, the impact negatively affects poor than the rich and exacerbates income inequality and poverty in the economy. They added that the rich easily evade tax while the low income group mostly have fixed income which normally been taxed right before it reach them. To reaffirm this assertion, Gyimah-brempong, (2002) study the impact of corruption (proxy of RSA) on growth and income inequality in Africa, using unbalanced panel data and dynamic General Method of the Moment (GMM). With the data of perception of corruption obtained from Transparency International and Gini equation, Gyimah-brempong found that corruption has an inverse and statistically significant relationship with income growth rate in African countries

In contrast to Gyimah-brempong, Dobson & Antonio, (2010) found that corruption is inversely related with income inequality in panel data study on Latin American countries, based on four years` average. Their findings contradicted most of the findings in the literature that corruption is positively related with income inequality. They argued that Latin American countries have large presence of shadow economy, which provide employment income to almost 30-70% of urban populations. Any attempt of reforming the informal sector will increase cost of doing business, loss of jobs and worsen income distribution in Latin Countries.

Conversely, Shughart et al., (2003) study the impact of rent seeking on income distribution by using data from the United States of America and interest groups influence as a proxy of rent seeking. He revealed that *ceteris paribus*, income inequality is positively correlated with interest groups influence in States where powerful interest groups determine the political process. On the other hand, educational attainment and exports as control variables were reported to be an increasing function of income inequality. Thus, they concluded that domination of the political environment by interest groups (lobbying) intensifies the rent seeking competition and worsens income inequality. In his survey Rosal, (2009) categorized the attempt by numerous researchers in measuring the concept of rent seeking into three different approaches. The first approach he termed as the Indirect approach that seek to measure rent seeking cost in what is known as the complete dissipation hypothesis. And the second approach is referred to as expenditure approach that measure rent seeking

expenditure as the social waste, while the third approach he called aggregate approach, that measure rent seeking impact on macroeconomic variables most often on economic growth by using the growth model.

In sum, the aforementioned studies provided an important insight into understanding of the impact of rent seeking activities on income inequality. Together, they provide good explanations of the channels through which rent seeking affects allocation of resources in favor of nonproductive sector at expense of productive sector which negatively affect exacerbate income inequality especially in developing countries. However, a large body of the literatures explained rent seeking activities with few robust empirical studies. This may be due to the fact that rent seeking activities cannot be measured directly. Further, the proxies which captures those activities or that may encourage or prevent rent seeking have limited data coverage especially in African countries. In this context, Rosal (2009) argued that rent seeking concept is globally accepted in the discipline of economics but its empirics and measurement fall short of expectations because of the difficulties involved in empirical evaluation.

III. Methodology

Data

The empirical analysis of this study was based on two models. The first model was based on data collected from a sample of thirty-one (31) African countries that spans from 1990 to 2005, while the second model collected its data from twelve (12) African countries which covers 1988 to 2008. The data for both models were obtained from the SWIID database. The data base covered most of the African countries and it has records for as many years as possible unlike the other databases that have been use in other researches (Law et al., 2013).

Definition and Measurement of Variables

There are seven (7) variables in this study. The Definition as well as the measurement basis of the variables are presented in Table 1

Table 1: Definition and Measurement of Variables

Variables	Definition and Measurement
Log of GINI Index (LGINI)	LGINI is the proxy for income inequality. The variable is scaled from Zero (0) to 100. Zero (0) means perfect equality and 100 means a single reference unit received all income.
Bureaucratic Quality Index(LBQ)	LBQL is the proxy of rent seeking activities. This is the variable of interest in this study. It was captured by the institutional strength and quality of good institution, which made it autonomous. The index of the variable is between 0 and 4 points. Higher points means that the bureaucracy is efficient and free from political control while low points on the other hand indicates inefficient bureaucracy and frequent change of rules and policies.
Log of Gross Domestic Product Per Capita Growth (LGDPG)	LGDPG denotes the log of per capita Gross Domestic Product. In line with the literature, LGDPG has negative relationship with LGINI, meaning that as the income per capita grows GINI index decreases
Gross Domestic Savings(LGDS)	LGDS stand for gross domestic saving (% GDP). The expected sign of LGDS is negative, which suggest that an increase in the domestic saving increase investment and income, hence decrease in LGINI index
Foreign Direct Investment (LFDI)	LFDI is the inflow of foreign direct investment (%GDP). FDI in literature have a number of positive impacts on the recipient countries e.g. Jobs creation which could improve income of the locals. Hence LFDI is expected to have negative sign with LGINI
Life Expectancy at Birth (LEXB)	LEXL stands for life expectancy at birth, which is used as a proxy of human capital development. The variable was used because of lack of available data on the human capital in the African countries. Moreover, life expectancy is correlated with investment in human capital (Tun Yin Li, 2011). The higher the life expectancy, the greater the investment in human capital development, and the longer the period to enjoys the payoffs from that investment.
Domestic Credit To Private Sector(LDCP)	LDCP stands for domestic credit to private sector (%GDP) and its expected signing is negative, which is based on the argument in the literature that, as a country is growing in financial sector, the income distribution improve. LGDS stand for gross domestic saving (%GDP).

Empirical Model

The study employed **Static Panel Data** and **Pool Mean Group (PMG)** estimation techniques to measure the impact of rent seeking activities on income inequalities in African countries. The advantage of Static Panel Data and Pool Mean Group Methods is that they control individuals' country heterogeneity. They also have the capacity of taking a large number of observations which have the advantage of more information, greater degrees of freedoms and variability (Law, 2011). The specification of the models for **Panel Data** and **Pool Mean Group (PMG)** estimations are as follows:

Panel Data Model

The basic panel data model is specified as follows:

$$LGINI_{i,t} = \alpha + \beta x_{it} + \mu_t + v_{it} \quad i=1 \dots, N \quad t=1 \dots, T$$

where:

LGINI_{i,t} = Log of GINI Index denoting the dependent variable,

X_{i,t} = Vector of independent variables which comprises of Bureaucratic Quality Index (LBQI) as a proxy for Rent Seeking ; GDP Per Capita Growth (LGDPG); Foreign Direct Investment (LFDI); Log of Gross Domestic Savings (LGDS); Life Expectancy at Birth (LEXB); Log of Domestic Credit To Private Sector (LDCP)

μ_t = Unobservable country specific

v_{it} = Idiosyncratic error term,

Pool Mean Group (PMG) Method

The second method employed in this study is Pool Mean Group (PMG), which takes averaging as well as pooling of the collected data. The PMG estimator allows the short run coefficients, mean, and variance of the residuals to differ across the groups and assumes constancy in long run coefficients. Pesaran., Shin.& Smith (2010) states that the reason for long run coefficients to be the same across the group may result, from similar technical knowhow that affect all the group members. The specification of the PMG model in this study, will follow Pesaran., Shin.& Smith (2010) as follows

$$LGINI_{it} = \sum_{j=1}^p \lambda_{ij} LGINI_{i,t-j} + \sum_{j=0}^p \phi_{ij} x_{i,t-j} + \varepsilon_{it} \tag{1}$$

$$\Delta LGINI_{it} = \phi_i LGINI_{i,t-1} + \phi_i x_{it} + \sum_{j=1}^p \lambda_{ij} \Delta LGINI_{i,t-j} + \sum_{j=0}^q \Delta x_{i,t-j} \delta_{ij} + \varepsilon_i \tag{2}$$

$$\Delta LGINI_{it} = \phi_i (LGINI_{i,t-1} - \theta_{0i} - \theta_{1i} x_{it}) \tag{3}$$

Form the Equations 1 to 3 $i = 1 \dots, N$ represents the cross sectional dimension, $t = 1, T$ are the time dimensions. The equation to be estimated is panel ARDL model (p, q, q..., q). Equation (1) signifies that **LGINI**_{it} is the independent variable which represents income inequality, **LGINI**_{i,t-j} is the lagged dependent variable, **X**_{i,t-j} is the vector of independent variables which comprises of Log of Bureaucratic Quality Index (LBQI) as a proxy for Rent Seeking ; Log of GDP Per Capita Growth (LGDPG); Log of Foreign Direct Investment (LFDI); Log of Gross Domestic Savings (LGDS); Life Expectancy at Birth (LEXB); Log of Domestic Credit To Private Sector (LDCP), μ_i is the fixed individual effect, ε_{it} is the white noise error term, λ_{ij} is coefficient of lagged dependent variable and δ_{ij} is the coefficient of explanatory variables. Equation (2) above represents short run and long run specifications. While, Equation (3) denote the error correction model, which measures the speed of adjustment to long run path, θ_i is the coefficient of long run variables.

IV. Results and Discussion

The descriptive statistics of the empirical data used the two models presented in Table 2 showed that the whole variables in the models have equal observations, and the models are strongly balanced. Panel unit root test using Im, Pesaran and Shin test, ADF- Fisher Chi-Square test and PP-Fisher Chi-Square test were conducted to test the stationarity of the variables. The result of the unit root test presented in Table 2 showed that the variables are combination of I(0) and I(1). Hausman test, the appropriate model is the Fixed Effect Model (FEM).

Table 2: Descriptive Statistics

VARIABLES	OBS	MEAN	STD.DEV	MIN	MAX	
Gini Coefficient (LGINI _{i,t})	496	3.77	0.19	3.36	4.21	
Bureaucratic Quality Index (LBQI)						
GDP Per capital Growth (LGDPG)	496	3.97	0.15	3.58	4.30	
Foreign Direct Invest. (LFDI)	496	5.17	1.05	0	6.19	
Gross Domestic Saving (LGDS)	496	5.21	0.98	0	6.21	
Life Expectancy at Birth (LEXB _{it})	496	5.19	0.97	0	6.19	
Domestic Credit To Private (LDCP)	496	5.09	1.21	0	6.17	
		496	0.88	4.89	-29.67	30.34

Table 3 Panel Unit Root Test

Panel Unit Root Test								
	IM, Pesaran and Shin			ADF- Fisher Chi-Square			PP-Fisher Chi-Square	
	Level			Level			Level	
Variables	Intercept	Intercept And Trend	And	Intercept	Intercept And Trend	And	Intercept	Intercept And Trend
LGINI	-3.4939***	-4.6899***		52.8731***	66.8154***		26.2146	16.3499
LBQI	-1.1211	-3.7714***		17.8086	43.2395***		0.5511	27.9952***
LGDPG	-2.5961***	-2.0981***		56.8662***	52.6505***		59.4366***	67.5316***
LFDI	-3.1693***	-2.6021***		49.2011***	44.0218***		38.1099**	39.9505**
LGDS	-4.0553***	-1.2166		57.7935***	30.4372		55.6363***	30.6840
LEXB	-3.9711***	-1.8781**		368.327***	54.2750***		65.8346***	53.3628***
LDCP	-0.8556	-2.5655***		26.7007	35.0844*		22.2649	12.5579

Note: ***, **, and * indicate the level of significance at 1%, 5% and 10% respectively. The variables inside the bracket are standard errors. All variables are in logarithm form. Lag length is automatic selection based on SIC.

Result of Static Panel Data

The Static Panel Data model is strongly balanced with 495 observations per variable from 31 African countries. VIF test shows that the model is free of multicollinearity problem as the mean of the VIF statistics is 1.15, which is less than five (5). Moreover, Breusch and Pagan LM test is significance which shows that Random Effect model more appropriate than Pool Effect. The Hausman test rejects the null hypothesis of difference in coefficients not systematic, thus, favored Fixed Effect model in table 3.0. The diagnostic check of serial correlation is insignificant, and fails to reject the null hypothesis of no serial correlation. This means that the model is free from serial correlation.

Table 3: Summary Result of Static Panel; Rent Seeking Versus Income Inequality

Variable	Pool Effect	Random Effect	Fixed Effect
Constant	5.8616 (0.243)***	4.8337 (0.398)***	4.6236 (0.460)***
LBQI	0.0550 (0.009)***	-0.0118 (0.009)	-0.0188 (0.0090)**
LGDPG	0.0002 (0.006)	-0.0006 (0.001)	-0.0007 (0.0011)
LFDI	-0.0301(0.009)***	-0.0265 (0.006)***	-0.0258 (0.0056)***
LGDS	0.0013 (0.008)	0.0127 (0.006)**	0.0137 (0.0057)**
LEXB	-0.5699 (0.062)***	- 0.2798 (0.099)**	4.6236 (0.460)***
LDCP	-0.0002 (0.006)	-0.0006 (0.001)	-0.0007 (0.0011)
Number of Observations	496	496	496

Note: ***, **, and * indicates 1%, 5% and 10% level of significance respectively. Values in parenthesis represents standard errors. All the variables are in logarithm form

The results presented in the Table 3 summarized the empirical findings of the impact of rent seeking activities on income inequality in African countries. The rent seeking is proxied by Bureaucratic Quality (LBQI), as such LBQI is the variable of interest in this model. Based on The finding of the model implies that rent seeking activities have positive relationship with income inequality in African countries. The expected sign of coefficient of the important variable (LBQI) has been achieved, which is negative and statistically significant at 5% level of significance. This is consistent with the findings of Gyimah-brempong (2002), Durden (1990), and Li et al. (2000). Accordingly, this indicates that an increase in the Bureaucratic quality index increases efficiency, effectiveness and professionalism. On the other hand Risk mismanagement, Change of Laws,

Policies and Procedures as well as Corruptions decreases Gini index. This indicates its potential role in improving distribution of resources in the continent.

Nonetheless, the coefficient of GDP per capita growth (LGDPG) shows negative but insignificant relationship with Gini index. The sign was expected as it indicates that per capita income growth decreases the income inequality in Africa. Another important finding was that FDI (LFDI) inflows as another control variable was found to have statistically significant negative relationship with Gini Index at 1% level of significance. This implies that inflow of FDI has positive impact to the growth of income of the host nations and reduces income gap in African countries. Another important control variable in the model is log of Gross Domestic Savings (LGDS), which is also statistically significant at 5% level of significance.

Life expectancy at birth (LEXB), which is a proxy of human capital, as is negatively related with the GINI index, and statistically significant at 5% level of significance. This shows that increase in life expectancy decreases the Gini index. This may be due to increase in the investment in acquiring human capital (Tun Yi Li, 2011) which improved income distribution. In the same vein, Domestic credit to private sector (LDCP) shows positive and statistically significant relationship with Gini Coefficient index. The result was consistent with the hypothesis of finance-inequality widening hypothesis that financial development contributes to income inequality in low income countries, African countries inclusive.

In sum, the result of Fixed Effect model presented in Table 3 is the appropriate model based on the result from Hausman test. However, it is interesting to note that the variable of interest is statistically significant in Pool and fixed effects models, while not significant in Random effect model..

Result of Pool Mean Group

The result of Pool Mean Group (PMG) presented in Table four (4) served as a robustness checks on the static panel method presented in Table 3. Hausman test is used to select the appropriate model between PMG and MG. The test failed to reject the null hypothesis of difference in coefficient not systematic, thus, the PMG is the appropriate model.

Table 4: Estimates of PMG and MG Model

VARIABLES	PMG	MG
LBQI	-0.0967 (0.0349)***	-0.1123(0.1911)
LGDPG	0.2712 (0.0637)***	- 2.6400(2.5199)
LFDI	-0.0095 (0.0068)	0.0105(0.0294)
LGDS	-0.1163 (0.2068)	- 0.1085(0.2940)
LEXB	-0.23795 (0.2468)	0.30791(0.2987)
LDCP	-0.4146 (0.0850)***	2.3528(2.3455)
EC	-0.0841 (0.0372)**	-0.1465(0.0466)***
Number of Observations	217	
Number of Groups	12	
Hausman Test	0.8855 (> 0.05 not significance)	

Note: ***, **, and * indicate the level of significance at 1%, 5% and 10% respectively. The variables inside the bracket are standard errors. All variables are in logarithm form

The PMG result showed that the long run coefficient of Bureaucratic Quality (LBQI), which is the variable of interest in this study and is having negative sign and is statistically significant at 1% level of significance. The control variables LGDPG and LDCP long run coefficients are statistically significant at 1% level of significance with expected sign. However, LFDI, LGDS, LEXB produced the expected signs but are not significant. Hence, the Error Correction (EC) term that measures the speed of adjustment to long run mean is negative and statistically significant at 5% level of significance. The EC coefficient is **-0.0841**, this indicates that the variables have long run relationship, and the speed of convergence to long run relationship is 8.41% per year. Interestingly, the long run coefficient homogeneity assumes by PMG is supported by the Hausman test result, which is not significant. And the robustness checks shows that LBQI as the proxy of Rent seeking is statistically significant at 1% level of significance, in Fixed Effect Model (FEM) as well as the PMG method, with the same negative sign, only the size of the coefficients differ [-0.0967(PMG) and -0.0188 (FEM)].

V. Conclusion

The study examined the impact of rent seeking activities on income distribution in African countries using Static Panel and PMG techniques. The result is interesting and it is in line with literature, as it indicates that rent seeking activities in African countries have a significant positive impact on income inequality in both static panel and PMG methods. The result revealed that the higher the score point in bureaucratic quality index the lower the Gini coefficient. This implies an inverse relationship between the bureaucratic quality index

(LBQI), a proxy of rent seeking and Gini index (GINI), the proxy of income inequality. This finding is in line with the empirical evidences of Gyimah-brempong (2002), Durden (1990) and Shughart, Tollison, & Yan (2003). The second important finding of the study is that most of the control variables included in our models that include Human capital (LEXL), FDI, financial development indicator (LDCP), government final consumption (LGOVC) Gross Domestic Savings (LGDS), and GDP per Capita (LGDP), are all statistically significant and achieved the expected signs proposed in Static Panel Model presented in Table 3.

On the basis of the empirical findings presented above, the study concludes that rent seeking activities that emanate due to absence of bureaucratic quality negatively affects income distribution in African countries. The result also suggests that ineffective and inefficient bureaucrats presents the risk of gross mismanagement, frequent change of laws, policies and procedures that in most cases favor the rich and highly connected individuals and groups at the expense of the poor. Moreover, the finding of this study portrayed that corrupt bureaucrats in Africa connive with politicians to divert public resources, by passed established regulations, and abuse rule of law. It also signified that the rent seeking activities redistribute public resources away from the poor, hampered human capital development, and exacerbate income inequality in Africa. Nonetheless, investment and FDI may suffer from the frequent change of policies and weak property right protection.

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