Analysis of the Impact of Economic Growth on Income Inequality and Poverty in South Africa: The Case of Mpumalanga Province

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ABSTRACT

The aim of this article is to estimate the impact of economic growth on income inequality and poverty using data from the Mpumalanga province in South Africa. Theoretically, it can be argued that there is a negative relationship between the Gini coefficient and economic growth, but evidence shows that it is not always the case. The same argument can be reasoned for economic growth and poverty. The purpose of this paper is to establish whether there is empirical evidence of such relationships. Furthermore, the paper examines the extent to which such nexuses are evident in South Africa with particular reference to Mpumalanga province. The Gini coefficient is used as a proxy for income inequality. The method of analysis used is the fixed effect and pool regression models with secondary data from all 18 local municipalities in Mpumalanga. The results have demonstrated that economic growth reduces poverty but not income inequality. The findings of this study have implication for policy makers to design strategies of reducing income inequality in South Africa. The study concludes by proposing socio-economic measures that could enhance economic growth and improve human development in a knowledge-based economy.

Keywords: Economic Growth, Income Inequality, Poverty, South Africa
JEL Classifications: I30, O110

1. INTRODUCTION

Economic growth and the equitable distribution of income are two of five main macroeconomic objectives any country would like to achieve and are concerned with economic development. Even though there is a belief that economic growth is the most powerful instrument for reducing poverty and improving the quality of life in developing countries, there is not enough debate amongst economists around the notion that a high level of economic growth is essential for poverty reduction. However, there is a lot of debate about economic growth and the gross domestic product and many questions have arisen on their impact on welfare. Gumede (2016. p. 89) argues that "…the majority of those countries which managed to achieve higher growth levels suffer from high levels of socio-economic and political hardship, which is reflected in endemic poverty, struggles for daily existence, economic and social inequalities as well as various cleavages." This shows that economic growth does not necessarily improve the lives of the poor.

On the other hand, high economic growth advances human development which, in turn, promotes economic growth. Rates

of the economic growth can have different effects on poverty. The extent to which growth reduces poverty depends on the degree of poverty and to which extent the poor are involved in economic activities. Thus, both the pace and pattern of growth matter in reducing poverty. The relationship between income inequality, poverty and economic growth has been an area of ongoing study for over five decades. The distribution of income in a country is assumed to fluctuate from relative equality to inequality and back to greater equality as the country develops. Increased growth rates, effectively measured by rising per capita incomes, would appear to make this link clear and simple. This means that economic growth reduces poverty and inequality. Yet it should also be noted that a higher inequality lowers human development by depriving lower-income households access to health and physical capital (Aghion et al., 1999; Galor and Moav, 2004).

The challenges of poverty and income inequality are commonly known globally. For example, about half of the world's population lives on the equivalent of two USA dollars per day (Hassoun, 2011). Developing countries have been mostly characterized by impressive economic growth since early 1995. Sometimes the

economic growth might come with challenges, which compound the socio-economic ills such as unemployment, poverty and inequality if the production process are technology and machinery based. In Africa; economic growth has picked up remarkably but empirical evidence of its impact on poverty and inequality is mixed. In some countries that have achieved economic growth, there is evidence of low income inequality, unemployment and less poverty but in other countries there has been no reduction in those socio-economic ills despite the fast economic growth.

In South Africa, there has been a robust debate around the impact of economic growth on poverty and inequality in the post-apartheid era. According to Gumede (2016. p. 115-116) "…there is a general consensus in South Africa that poverty and inequality, particularly income inequality and income poverty, are persistent. These two development issues are primarily linked to the legacy of the apartheid system of governance as well as the structure of the economy." This indicates that economic growth may have a positive impact in reducing income inequality and poverty but it might not always be the case. Lewis (2008) describes this phenomenon as "growth without prosperity" in Africa's new democracies. For example, during the first decade of democracy in South Africa, the economy has recorded one of its longest periods of positive economic growth in the country's history. One of the more puzzling issues within the economic policy terrain in post-apartheid South Africa though, has been the impact of this consistently positive growth performance on social welfare, specifically, income poverty and inequality (Bhorat and van der Westhuizen, 2012). Many observers have highlighted the potential harmful consequences of persistently high levels of poverty and, particularly economic inequality, on the quality and sustainability of democracy (Bermeo, 2009; Kapstein and Converse, 2008; Well and Krieckhaus, 2006).

The primary objective of this article is to conduct an empirical investigation on the impact of economic growth on income inequality and poverty in the Mpumalanga province. To achieve this, the study sought to determine whether a short-run and/or long-run relationship between income inequality, poverty and growth does exist. It also deals with the implications from the findings. First and foremost the study provided a reflections on recent theoretical and empirical studies and described data and methodology. Thereafter, an econometric analysis of the results and findings with detailed implications is outlined. Lastly, a conclusion and direction for future research are outlined.

2. REFLECTIONS ON RECENT THEORETICAL AND EMPIRICAL STUDIES

The relationship between economic growth, poverty and income inequality can be positive or negative. In other words, there is no empirical consensus that the association between income inequality, poverty and economic growth is consistent. Some recent research and development experiences suggest that sufficiently high and sustained growth is a prerequisite for meaningful, and hopefully irreversible, impact on poverty and income distribution. In addition; a careful analysis of historical growth processes across the world reveals that records of sustained

and sufficiently deep economic growth which reduce both poverty and income inequality are an exception rather than a rule. Thus, when economic growth takes place, its impact on poverty and income distribution is not automatic. The efficiency of growth in terms of poverty reductions, as well as its sustainability over time depends on the extent of inequality. Indeed, while the empirical evidence suggests that practically no economic improvement takes place without growth, depending on the extent of initial inequality. Growth spells may either collapse to a grinding halt, get completely reversed, or instead, could trigger a virtuous circle from growth to reduced poverty and to improved equality to further sustained growth in the future (Hassan, 2008. p. 6). Many different countries experience growth without both the reduction of poverty and widened income inequality, for example, China and India while others manage to reduce only one of these two socio-economic ills, and these are Bangladesh and Uganda (Hassan, 2008). It is important to add that widening inequality and lack of poverty also have significant implications for growth and macroeconomic stability. According to Claessens and Perotti (2007) inequality might lead to political and decision making power in the hands of a few and/or to poor public policy choices. For example, it can lead to a backlash against growth-enhancing economic liberalization and fuel protectionist pressures against globalization and market-oriented reforms (Claessens and Perotti, 2007). In the South African political economy, this is known as radical economic transformation which recently has been topical and the policy direction the ruling party is taking.

In their research on economic growth and inequality; Panizza (2002) and Frank (2002) studied the case of the United States of America (USA). The former reveals that an increase in per capita income equalizes income distribution in the USA. The results also showed that the relation between income inequality and growth is not robust. The latter study showed that there is a negative relationship between income inequality and economic growth but this negative link seems to be higher in low-income States of the USA. Rangel et al. (2002) examine the impact on economic growth of income inequality pertaining to Brazilian cities in minimum comparable areas. They check non-linear or inverted-U shaped phenomenon for these variables. Several regressions are estimated using socio-economic variables to observe the attributed link between inequality and per capita income growth over a 10-year period, i.e., 1991-2001. The empirical evidence shows that the inverted-U shaped curve is the best functional specification to signify the relationship between inequality and economic growth. To verify the results, the Akaike information criterion has been used to confirm their reliability and validity.

Marta and Sanchez-Robles (2005) and Malinen (2008) examine the connection between income inequality and economic growth using Latin American countries data. Their results indicated mixed outcomes that the impact of income inequality on economic growth may be different at different stages of economic development and that the income inequality is negatively related to economic growth in South American countries. This was again found by Wan et al. (2006) in their study on the nexus between income inequality and growth in post-reform using polynomial inverse lag framework for China. Their results indicate that there is a non-linear and negative

link between income inequality and economic growth irrespective of the time applied. Nahum's (2005) results, on the contrary, using Sweden as a case study, aptly and positively indicated that income inequality is the necessary evil or an opportunity cost for economic growth. Heyse (2006) extends the work on growth-inequality nexus for developing economies. The results reveal that developing countries with high income inequality are not connected with less economic growth as compared to those developing economies where income distribution is more equal (Heyse, 2006). Bahmani-Oskooee and Gelan (2007) found that economic growth for the USA favors income inequality for a short span of time but improves income distribution in the long run.

Cañadas (2008) analyzed inequality in Argentina using Partridge (2005) framework. It is revealed that the income growth of different quintiles has been related to economic growth for each province. The two models used were the spatial lag model and spatial error model. The results from the study indicated that income inequality in one province and inequality in other neighboring provinces was negatively related with the growth of all provinces in Argentina. It is important to question the issue of celebrating high economic growth in developing countries especially if it has not translated into significant improvements in the wellbeing of the continent (Gumede, 2016).

Research evidence suggests that the reduction of poverty in any country depends on the rate of average income growth, the initial level of inequality, and changes in the level of inequality (World Bank, 2001; Bourguignon, 2003; Klasen, 2004). Empirical evidence indicates that low inequality is positively associated with poverty reduction in countries with high economic growth (World Bank, 2001; Dollar and Kraay, 2002; Bourguignon, 2003). Therefore, there is a pay-off in poverty reduction from growth, but also of lower initial inequality and reductions in inequality during the growth process.

The aforementioned reflections have shaped this article as the following sections indicate. It is important to continue with pursuing all possible means to further economic growth ensuring that is sustainable and that it translates into the reduction of both poverty and income inequality.

3. DATA DESCRIPTION AND METHODOLOGY

Income inequality can be measured using different indicators of which the most used ones are the Lorenz curve, Gini coefficient, quantile ratio and Palma ratio. In addition, there are others which are less commonly used such as the Theil index, Robin Hood index, Atkinson index, coefficient of variation, generalised entropy index and Sen poverty measure. Each of these indices has some advantages and shortfalls. This paper adopted the commonly used indicator which is the Gini coefficient. However, this choice does not indicate that it is the best or better index than others.

According to Gumede (2015) the Gini coefficient is the most commonly used measure of inequality. It measures how much

the distribution of income, or consumption expenditure, among individuals or households deviates from a perfectly equal distribution. Graphically, the Gini-coefficient can be easily represented by the area between the Lorenz curve and the line of perfect equality (Shahbaz, 2010). The Lorenz curve plots the cumulative percentages of total income received against the cumulative number of recipients, starting with the poorest individual or household (Mohr, 2012). The Gini coefficient varies from 0 to 1, meaning that if the income is distributed perfectly the Gini coefficient is zero. In this case the Lorenz curve will be equal to the line of the prefect equality and the area of inequality will be equal to zero. In other words, the higher the Gini coefficient is, the higher the level of inequality. A major advantage of the Gini-coefficient is that it measures inequality by means of a ratio analysis that includes, and therefore represents, the total population and not just a part of the population (Mohr, 2012). Thus, for income inequality this study used Gini coefficient data of all 18 local municipalities in the Mpumalanga province of South Africa.

Having discussed the measurement of income inequality, for poverty, this study used Share below the lower poverty line as defined by Statistics South Africa. The poverty line is the level of income below which an individual or a household is regarded as poor (Tucker, 2017). Therefore, the paper used poverty rate as a percentage of the total population in each municipality of the Mpumalanga province from 1996 to 2014. The same applies with economic growth which is the ability of an economy (national, provincial or municipal) to produce greater levels of output. This ability could be influenced by increase in resources such as capital or human and technology. Tables 1-3 provide the Gini coefficient, poverty and economic growth in the local municipal area of the Mpumalanga province. The data was obtained from IHS Global Insight – ReX, June 2015. Among the 18 local municipal areas in 2014, referring to the Table 1, Dr JS Moroka (0.53) registered the lowest (best) Gini-coefficient and Govan Mbeki, jointly with Mbombela Municipality, the highest (worst) at 0.62. With the exception of Victor Khanye, the income inequality deteriorated in all the municipal areas over the 18-year period under review. Emalahleni and Thaba Chweu registered the highest deterioration in income distribution between 1996 and 2014. In terms of poverty level, in 1996 the municipality with the highest level was Chief Albert Luthuli (75.5%) and the lowest was Steve Tshwete (31.6%); Nkomazi Local Municipality had the highest level of poverty (50.1%); Emalahleni and Steve Tshwete experienced the lowest poverty level (19.6%) in 2014.

In order to empirically analyse the impact of the economic growth on income inequality and poverty in the Mpumalanga province, econometric models are developed. This study performed a cross-sectional time series data analysis which offers a better alternative to cross-country and time-series analyses (Dawson, 2008; 2010; Hassan et al., 2011; Jaunky, 2013). For Dawson (2008. p. 327) a cross-sectional time series data set consists of n individuals (local municipalities) over t time periods (years). According to Stiglingh (2015. p. 46) "the use of cross-sectional time series data enables the study to address a broader range of variables and tackle more complex data that wouldn't be possible with pure time series or pure cross-sectional data alone." In addition, by using time

Table 1: The Gini coefficient of Mpumalanga local municipalities: 1996-2014

Local municipality	1996	1999	2002	2005	2008	2011	2014
Bushbuckridge	0.55	0.60	0.60	0.57	0.58	0.54	0.57
Chief Albert Luthuli	0.55	0.60	0.62	0.60	0.58	0.56	0.58
Dipaleseng	0.54	0.58	0.60	0.61	0.59	0.56	0.58
Emakhazeni	0.51	0.56	0.59	0.60	0.59	0.57	0.70
Emalahleni	0.54	0.59	0.61	0.62	0.61	0.60	0.60
Govan Mbeki	0.59	0.64	0.65	0.65	0.64	0.63	0.61
Dr. J. S. Moroka	0.52	0.57	0.58	0.55	0.53	0.52	0.53
Lekwa	0.56	0.60	0.61	0.61	0.60	0.59	0.58
Mbombela	0.59	0.63	0.63	0.63	0.63	0.63	0.62
Mkhondo	0.57	0.61	0.62	0.61	0.60	0.59	0.59
Msukaligwa	0.55	0.60	0.62	0.62	0.61	0.60	0.59
Nkomazi	0.56	0.60	0.60	0.59	0.58	0.57	0.57
Pixley Ka Isaka Seme	0.59	0.62	0.64	0.64	0.63	0.62	0.61
Steve Tshwete	0.55	0.60	0.61	0.61	0.61	0.59	0.58
Thaba Chweu	0.54	0.59	0.61	0.62	0.62	0.60	0.60
Thembisile Hani	0.51	0.56	0.56	0.55	0.53	0.51	0.54
Umjindi	0.55	0.59	0.61	0.61	0.61	0.60	0.58
Victor Khanye	0.59	0.63	0.63	0.62	0.61	0.61	0.59

Source: IHS Global Insight – ReX, June 2015

Table 2: Poverty in Mpumalanga between 1996 and 2014: Share below the lower poverty line (Stats SA defined) in %

Local municipal area	1996	1999	2002	2005	2008	2011	2014
Bushbuckridge	72.2	76.7	77.1	69.1	67.2	53.6	48.4
Chief Albert Luthuli	75.5	77.1	75.7	65.5	61.8	46.5	42.8
Dipaleseng	57.9	63.6	64.5	52.9	46.6	30.0	29.9
Emakhazeni	51.1	54.3	54.9	46.4	42.7	27.9	28.2
Emalahleni	31.7	38.6	41.2	35.2	30.9	18.6	19.6
Govan Mbeki	41.4	42.8	42.8	37.8	35.3	24.0	24.6
Dr. J. S. Moroka	71.0	73.6	73.0	64.9	62.6	47.7	45.8
Lekwa	45.7	49.9	51.5	44.5	41.6	28.2	29.9
Mbombela	55.4	57.3	57.1	49.6	46.9	33.1	33.1
Mkhondo	65.8	71.9	73.7	66.3	64.1	50.0	49.8
Msukaligwa	48.8	56.3	58.7	50.2	45.5	30.3	33.0
Nkomazi	74.4	75.5	74.7	66.1	64.2	50.4	50.1
Pixley Ka Isaka Seme	64.5	70.5	72.1	63.5	60.1	45.7	43.8
Steve Tshwete	31.6	38.6	41.2	35.2	30.9	18.6	19.6
Thaba Chweu	43.6	45.8	46.0	37.6	34.2	21.3	21.2
Thembisile Hani	65.3	69.2	69.5	61.1	58.6	43.6	40.7
Total	59.1	62.1	62.1	54.0	51.1	37.2	36.0
Umjindi	47.7	48.6	48.7	42.1	40.7	28.4	30.9
Victor Khanye	52.3	57.3	58.2	49.2	44.8	29.8	30.5

Source: IHS Global Insight – ReX, June 2015

Table 3: The economic growth by local municipalities (in %): 1996-2014

Local municipality	1996	1999	2002	2005	2008	2011	2014
Bushbuckridge	−1.8	−0.1	−2.9	1.6	−1.4	2.4	1.8
Chief Albert Luthuli	1.1	3.1	7.4	−0.3	1	3.3	−0.6
Dipaleseng	−0.5	4.3	3.7	7.5	0.3	−4.4	−2.7
Emakhazeni	2.4	0.6	1.8	−2.3	−1.9	0.6	0.1
Emalahleni	6.2	4	10.5	2.6	−3.3	3.7	−1.7
Govan Mbeki	3.2	3.5	−1.4	12.3	−0.3	5.10	−1.5
Dr. J. S. Moroka	−3.3	−8.1	−13	−3.2	−9.8	2.3	1.4
Lekwa	2.9	3.8	3.5	0.3	−4.5	1.4	1.9
Mbombela	2.6	2.6	−0.5	3.6	0	−1	0.4
Mkhondo	1.6	3.3	3	1.7	0.4	1	1.1
Msukaligwa	1.1	3.1	3.2	2.9	1.2	0.1	−1.3
Nkomazi	1.1	1.3	−1.1	2	−0.1	−1	1.2
Pixley Ka Isaka Seme	1.4	3.4	13.7	3	−3.7	−3.3	−0.6
Steve Tshwete	2.7	2.9	2.5	5.6	−0.3	3.7	−1.7
Thaba Chweu	1.9	2.2	2.1	−0.8	−0.4	2.6	−1.9
Thembisile Hani	0.2	1.6	−0.8	1.5	−4.5	6.9	3
Umjindi	0.1	3.3	1.9	6.6	−11.4	−1.6	−0.5
Victor Khanye	3.5	3.7	4.9	5.1	1.8	8.7	2.3

Source: IHS Global Insight – ReX, June 2015

series data it would frequently have a need for a long-run of data merely to get the necessary number of observations to be able to conduct a meaningful hypothesis testing. The models specified are as follows:

$$GINI_t = \alpha + \beta EC_t + \delta POV_t + \varepsilon_t \qquad (1)$$

$$POV_t = \alpha + \beta EC_t + \gamma GINI_t + \varepsilon_t \qquad (2)$$

Where, GINI represents income inequality, EC denotes the economic growth, POV represents the poverty level, t represents time, α is the slope coefficient. β, γ and δ are the coefficients of economic growth, income inequality and poverty, respectively, while ε is the error term. Certain steps have to be followed in order to know when to use a normal panel regression which means that the data is integrated. But in a case where data is not integrated, the analysis would continue with a cointegration analysis. Therefore, stationarity testing using unit root is employed because time series and cross-sectional information is combined, as a result of the increase in the sample size. Thus, if variables are found to be nonstationary, the analysis continues with a cointegration analysis to find the fully modified ordinary least square (OLS) model in order to show the long run relationship between variables. If the results from the unit root indicate that all variables are stationary; the experimental data is rather tested with a simple panel regression model which entails both time series and cross-sectional data in the design and would be used to continue with data analysis (Stiglingh, 2015). In other words, the cross-sectional time series data which is found to be stationary results in, or leads to, running a fixed effects or random effects test.

4. RESULTS

This section is the empirical analysis and results of the relationship between the Gini coefficient, poverty and economic growth using the cross-sectional time series data from all 18 local municipalities of Mpumalanga province from 1996 to 2014. The analysis started off with unit root test for each variable. Recent studies have suggested that panel-based unit root tests have higher power than unit root tests based on individual time series. There is a number of panel unit root test, following five types of panel unit root tests namely: Breitung (2000), Levin et al. (2002), and Im et al. (2003), Fisher-type tests using augmented Dickey-Fuller and PP tests (Maddala and Wu, 1999; Hadri, 2000; Choi, 2001). After running the unit root test using E-views 8, the results from the unit root at level is presented in Table 4.

Table 4 presents the results of the panel unit root tests at the levels for Gini coefficient and economic growth at level while poverty is at first difference. The results indicate that all variables are I(0)

in the constant of the panel root regression. Therefore, there is no need for conducting a panel cointegration tests, which is supposed to be done only if the variables have a unit root or are I(1). In other words, there is no long-run relationships between variables. Thus, the analysis proceeds with an estimation of the pooled regression model, fixed effect model (FEM), random effect model (REM) and Hausman test, to identify the model supported by the data.

Both Table 5a and b analyzing the Gini coefficient and poverty, respectively, present the pooled regression analysis or OLS results. The results indicate that economic growth is positively related to income inequality and negatively with regard to poverty. In addition, the results of this paper showed that there is a negative relationship between the Gini coefficient and poverty. All coefficients are statistically significant except the one for economic growth as illustrated in Table 5b. Considering the negative sign of the growth coefficient in Table 5b, it indicates that the increase in economic growth does reduce poverty. As shown in Table 5a, an increase in economic growth does not seem to decrease income inequality in the Mpumalanga province. The results of this study are in line with the findings reported by van der Berg (2010) which indicated that South Africa consists of high levels of inequality, with especially large and persistent inequality in income distribution. Therefore, the plausible explanation behind these findings could be that when the economy is growing, job creation takes place and those who are unemployed get some income which may reduce the level of poverty, but this growth does not reduce the level of income inequality. These results have to be compared with the ones from the FEM which are presented in Table 6a and b.

Table 6a and b show that all economic growth coefficients are positively related to income inequality and poverty, while both the Gini and poverty coefficients are positive for both models. However, the coefficients of the constant in Table 6b is negative. Referring to Table 6a, it is found that a unit increase in economic growth and poverty leads to 0.000199 and 0.045801 units increase in income inequality. Furthermore, in Table 6b, a unit increase in economic growth and the Gini coefficient leads to 0.001532 and 1.178730 units increase in poverty level. In addition, the R^2 from both tables indicates that approximately 64% of changes in income inequality and approximately 63% changes in poverty is caused by economic growth, using cross-sectional time series data from all 18 municipalities in the Mpumalanga province. This implies that, 36% and 37% of balance is accounted for by the error term. Furthermore, the results show that inequality hampers poverty reduction. This is in line with the argument of Ravallion (2004). As a results, "…this is usually found in countries with high initial levels of inequality or in which the distributional pattern of growth favours the non-poor" (Dabla-Norris et al., 2015. p. 9). The next

Table 4: Panel unit root for the Gini coefficient, poverty and economic growth

Variables	Levin, Lin and Chu t*	Im, Pesaran and Shin W-statistics	ADF - Fisher Chi-square	PP - Fisher Chi-square
Income inequality	−5.50995***	−4.55959***	85.8651***	98.5115***
Poverty (at 1st difference)	−11.6920***	−8.01039***	129.684***	68.4366**
Economic growth	−7.99790***	−6.53271***	116.452***	136.787***

*** and **indicate 1% and 5% significance levels respectively. Source: Estimated by author. ADF: Augmented Dickey–Fuller

Table 5a: Pooled regression model (dependent variable: GINI)

Variable	Coefficient	Standard error	t-statistic	P
C	0.608225	0.005494	110.7091	0.0000
Growth	0.001635	0.000408	4.004208	0.0001
Poverty	−0.034522	0.010339	−3.339080	0.0009

Source: Estimated by author

Table 5b: Pooled regression model (dependent variable: Poverty)

Variable	Coefficient	Standard error	t-statistic	P
C	1.047720	0.163479	6.408878	0.0000
Growth	−0.000113	0.002159	−0.052506	0.9582
Gini	−0.922377	0.276237	−3.339080	0.0009

Source: Estimated by author

Table 6a: FEM for GINI

Variable	Coefficient	Standard error	t-statistic	P
C	0.570890	0.005426	105.2158	0.0000
Growth	0.000199	0.000299	0.666237	0.5057
Poverty	0.045801	0.010684	4.286713	0.0000

R^2=0.641951, N=342, P (F-statistic)=0.000000. Source: Estimated by author.
FEM: Fixed effect model

Table 6b: FEM for poverty

Variable	Coefficient	Standard error	t-statistic	P
C	−0.203847	0.163332	−1.248050	0.2129
Growth	0.001532	0.001513	1.012161	0.3122
Gini	1.178730	0.274973	4.286713	0.0000

R^2=0.638814, N=342, P (F-statistic)=0.000000. Source: Estimated by author.
FEM: Fixed effect model

Table 7a: Hausman test for the Gini and cross-section random effects

Test summary	Chi-square statistic	Chi-square df	P
Cross-section random	13.487792	2	0.0012
Cross-section random effects test comparisons			
Variables	Fixed	Random	Var (difference)	P
Growth	0.000199	0.000299	0.000000	0.0044
Poverty	0.045801	0.037141	0.000007	0.0014

Source: Estimated by author

Table 7b: Hausman test for poverty and cross-section random effects

Test summary	Chi-square statistic	Chi-square df	P
Cross-section random	8.323594	2	0.0156
Cross-section random effects test comparisons			
Variable	Fixed	Random	Var (differnce)	P
Growth	0.001532	0.001366	0.000000	0.2528
Gini	1.178730	0.998872	0.003890	0.0039

Source: Estimated by author

step is to estimate the REM results and the correlated random effects-applying Hausman test to select between FEM and REM to identify which model is appropriate to accept. It should be noted that the null hypothesis is that random effect is appropriate or alternatively is that fixed effect is an appropriate model.

The results of correlated random effects Hausman test, in both Table 7a and b, show the P values being 0.0012 and 0.0156, respectively, indicating that the null hypothesis should not be accepted and thus meaning that the FEM is the appropriate one. Hence, the fixed effects specification is preferred by the data. This is also confirmed by the variation difference between variables which is much smaller, meaning that the variables are now strongly correlated to one another and that the sample is a good fit for this specific model and data. However, the fixed effect in this case wouldn't be the best either because there are no dummy variables in our panel of time series data. It also confirms that the economic growth does not reduce income inequality in the Mpumalanga province rather it widens it. Hence, this paper considers the results from the pooled regression to be the best.

5. POLICY IMPLICATIONS

From the above results, one may argue that a country or a province experiencing a high economic growth without reduction in income inequality implies that only few people reap the benefits of the economic growth and progress. This is also addressed by Gumede (2016) when he aptly indicated that despite sustained growth levels in different phases of the lifecycle of the economy, African countries have not made a dent in improving human development; instead they have been bewildered by unsustainable poverty levels, joblessness, weak economic growth, and rising inequality. Therefore, poverty reduction could be done through clear labor market policies. This could be done by making sure that the productive resources especially the unemployed youth get opportunities of contributing to the economy through sustainable job creation from economic growth. In other words, the creation of jobs would be one of the ways to translate high economic growth rates into the improvement of wellbeing in Mpumalanga province, in particular, and South Africa, in general. However, job creation on its own is not enough; it should be jobs which are permanent with decent incomes that improve workers' lives. The policy of increasing the minimum wage in order to reduce poverty level in South Africa should be implemented and well monitored. This could be done by paying higher wages to the lowest paid and this seems not to affect negatively the economic growth or employment rates in a country if the issue of productivity is well addressed as well. In addition, this article argues that to reduce income inequality the issues of maximum wage of skilled and well paid individuals also should be looked at.

As indicated by the empirical findings of this article, economic growth is undeniably one of the powerful mechanisms for poverty reduction, but it does not reduce inequality. This implies that an increase of the gap between rich and poor needs to be addressed because it negatively impacts all the essence of life such as education; health, and social mobility. These findings show that economic growth does not address the problem of inequality. Policies that provide durable redistributive measures that bring economic growth and reduce inequality should be prioritized. This could be done by expanding opportunities to those with disadvantaged backgrounds and to low-income households. This

is to suggest that macroeconomic policies should go beyond its narrow objectives of stability because evidence has shown that where the stability is achieved it is at the expense of an increase in inequality and probably less improvement of the wellbeing of citizens.

The emphasis on improving education outcomes and job creation is crucial for poverty reduction and could reduce the overall income inequality in the long-run. The low education and skills levels of those that are currently structurally unemployed would not assure them of high labor market earnings. Consequently, even if they were employed, it would probably be at low wages, thus leaving the aggregate income inequality high. Improving education and skills levels and at the same time improving labor market policies may bring positive outcomes in the long-run even if it may reduce the efficient functioning of the labor market in the short-run. Considerable improvements in the education system and skills provision are necessary to remove the premium for skilled labor most effectively and thus improve the distribution of income through inclusive economic growth. For all these to take place, an improvement in the economic infrastructure is very crucial.

High income inequality can be detrimental to achieving macroeconomic stability and this might be a result of a growing public demand for income redistribution (IMF, 2014). This leads to another angle one could take into consideration: The impact of fiscal instruments on the Gini coefficient. In other words, how government expenditure influences income inequality reduction. Undeniably, addressing the challenge of income inequality would require a consistent fiscal sustainability and more efficient public services delivery (Woolard et al., 2015). Therefore; choices with regard to the level and composition of government spending are clearly one of the important ways of addressing income inequality.

6. CONCLUSION

The vital agenda for most countries especially developing ones is to address the challenge of poverty and inequality. This requires inclusive economic growth. The aim of the article was to assess the impacts of economic growth on income inequality and poverty in South Africa. The panel regression analysis is applied using the Mpumalanga province data. The results show, on the one hand, a negative relationship between economic growth and poverty, and on another hand, a positive relationship between growth and income inequality. In addition, the findings indicate that approximately 64% of changes in income inequality and approximately 63% changes in poverty are as a result of economic growth in Mpumalanga Province.

This article revealed conflicting results with theory that economic growth is the solution to the poverty and income inequality. Consistently, the findings of this article from the pooled regression and FEMs confirm that economic growth does not reduce income inequality. Therefore, continuing with the current economic growth led policies may reduce poverty but on the cost of widening the income inequality gap. Hence, South Africa seemingly needs a robust socio-economic development model to address both issues of poverty and inequality. This might be done through human

development and knowledge based economic model. The results from this article clearly demonstrate that future research on income inequality and its effect on economic development should continue to be areas of interest to scholars and researchers especially those in political and development economics.

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