

> “The Good, the bad” – the unequal:

A Global perspective on income inequality and growth

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Abstract

This essay, analyses the relationship between income inequality and growth by first defining Income inequality, observing opposing views on this long debated topic and then proceeding to conduct an empirical analysis. This essay concludes that income inequality affects growth through externalities (the political economy & tax, lack of investment in human capital, credit and capital markets, through high crime and fertility rates) associated with relatively high inequality levels negatively and should be minimized especially in developing countries such as South Africa for the sake of fast tracking growth and long term development. Relatively developed countries are also negatively affected by inequality. Policy should be aimed at inequality reduction.

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1) Introduction

In the minutes of an Income Equality meeting with the minister of Economic development held on the 08th of October 2009, it was apparent that “...policy debates, globally, were characterised by a deep concern in the public sector about rising income inequality in every part of the world” (Economic Development: 2009). From this it’s clear that inequality is an influential factor in the growth process of an economy.

Cornia et al (2001) state’s that “accelerating rates of economic growth is an accepted priority for any anti-poverty strategy. But, policymakers have largely ignored the issue of inequality. This appears to be a very short sighted approach. Rising inequality threatens growth and poverty reduction targets.” This essay analyses the empirical evidence on the relationship between income inequality and growth, and further explores various views of this relationship in order to guide policy makers and shed light on this long debated economic and social issue.

2) Income Inequality

2.1) Defining Income Inequality

Income inequality is a description of the degree to which income is unevenly distributed amongst residence of a geographic location. According to the Oxford Dictionary of Economics “...inequalities between individuals are accounted for by differences in earning ability, and in property. Individuals who are economically inactive, through age, ill health, or inability to find a job usually have low incomes even after taking account of social security benefits, and those who can work have very varied earning power” Black (2002). It is these variances in income that give rise to income inequality where a high level of inequality indicates that a small share of the population at hand receive a majority of the total income and that the remaining larger share of the population receive a minority of total national income.

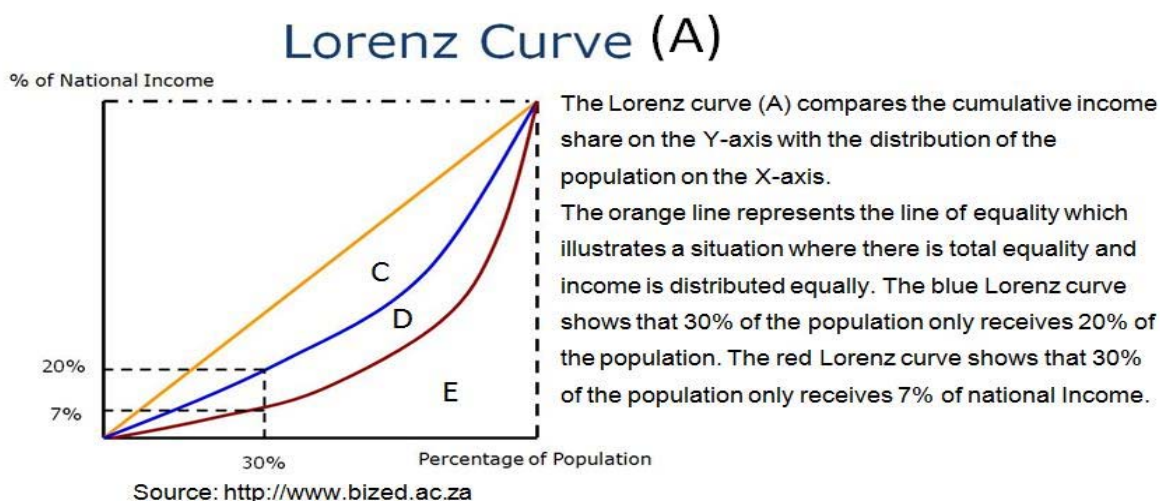
2.2) Measuring Income Inequality

There are several methods that exist for the purpose of measuring Income inequality and choosing a specific measure is challenging as the measures are based on societies definition of income inequality. Therefore “...choosing a standard inequality measure is really a choice between alternative definitions of inequality rather than a choice between alternative measures of a single theoretical construct” Allison (1978). These measures are as follows:

- A. Median Share of income
- B. Calculations based on percentile distributions
- C. Lorenz Curve and the Gini Coefficient
- D. Robin Hood Index
- E. Atkinson Index
- F. Theil’s Entropy Measure
- G. Coefficient of Variation

2.2.1) The Lorenz curve and the Gini Coefficient

The application of the Gini coefficient can be illustrated as follows:



According to Bized (2006), “Income Inequality is a statistical term and is measured by the Gini Coefficient which was originally developed by the Italian statistician Corrado Gini. The Gini Coefficient ranges from 0.0 to 1.0, 0.0 being equality and 1.0 being maximum inequality”.

With regards to the illustrations above, the Gini coefficient for the blue Lorenz curve would then be determined by taking the area of C and dividing it by the area of D + E. The Gini coefficient for the red Lorenz curve would be determined by dividing the area of C + D by the area of E. This essay will use the Gini coefficient to measure Income inequality from this point forward due to its wide use and influence in the analysis of income inequality in economic theory and literature.

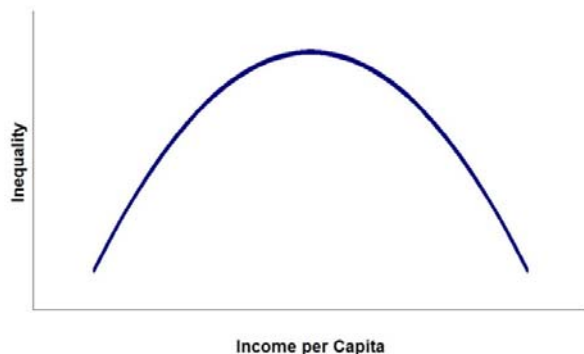
3) Empirical Analysis

3.1) Theory & Literature

Throughout Economic literature, the relationship between income inequality and growth has been a bone of contention. Conventional Keynesian wisdom asserted that “average propensity to save increases with income level so that, by redistributing income in favour of the rich, the economy-wide average propensity to save and, hence *ceteris paribus* the fraction of GDP devoted to capital formation would rise, thereby promoting economic growth” Matthew et al (2001). This Keynesian view suggests that income inequality has a positive relationship with growth through the savings function. However, Edison et al (2001) observed that a rise in inequality “is disturbing since little progress can be made in poverty reduction when inequality is high and rising. Moreover, contrary to earlier theories of development, high inequality tends to reduce economic growth.” Another view of the relationship between income inequality and growth was developed by Simon Kuznet.

Kuznets curve is illustrated in figure 1 by the blue line. It is an inverse-u shaped curve that shows the relationship between Income Inequality and Income per capita. Inequality is measured by the Gini coefficient and Income per Capita is measured by GDP income per capita. Between point A and B, there is a positive relationship between income and inequality. However, between point B and C there is a negative relationship between inequality and growth.

Figure 1: Kuznet Curve



Simon Kuznet proposed that inequality is necessary for growth, “...first rising with industrialization and then declining, as more and more workers join the high-productivity sectors of the economy” (Kuznets 1955). However, recent studies and tests of Kuznets proposition have pointed in opposite directions. “Today, the Kuznets curve is widely held to have doubled back on itself, especially in the United States, with the period of falling inequality observed during the first half of the twentieth century

being succeeded by a very sharp reversal of the trend since the 1970s” (Piketty et al 2003).

Though it’s important to note the opposing views with regards to inequality and growth it is equally important to understand that the variance in views is a result of different factors such as the availability of information, data integrity, definitions of income (pre-tax vs. post tax etc.), using land and asset Gini’s instead of monetary income Gini’s and so forth. This essay’s view is that a blanket approach to this crucial topic is not practical as hindsight has revealed, furthermore it proposes the view that Income inequality affects growth negatively through various components of an Economy as concluded by Edison et al (2001) which are as follows.

3.2) Effect of Inequality on Growth

Political economy & Tax: Inequality affects growth negatively through the political economy and fiscal policy. This is brought about through the majority voter and “median voter” concept. In an environment where the majority of the population earn a small share of total income, they will vote for a government which prioritises redistribution and develops policies with the lower earners in mind as “...the majority voting rule requires that a proposal receives “50% plus one vote” support before it can be imposed on the community” Black et al (2008).

Therefore in an unequal economy, where the majority voter principle has favoured relatively low earners, redistribution will need to be funded by tax which will retard growth by placing a heavier tax burden on the members of the economy or through government debt interest payments if the government opts to borrow.

Investment in Human Capital: Even if a government creates access to education, it being a merit good means that it is subject to excludability, especially secondary and tertiary education and thus relatively low earners may not be able to access education which will negatively affect growth as they make up the majority of the population.

“The greater the degree of wealth and income inequality, the greater the number of people for which the

constraints would be binding and, therefore, the lower is the stock of human capital in the economy” Odedokun et al (2001).

Credit and Capital Markets: Education and consumption are largely funded by credit more especially by the middle to lower class earners. If inequality plagues an economy, few households will meet the criteria for obtaining credit for education and durable goods thus hampering growth. The Capital markets, the source of finance for the private sector, will only be available to high income earners in an unequal economy thus hampering small business and causing market failure through the rise of monopolies as the cost of starting businesses and criteria for meeting capital market funding requirements will only be available to relatively higher income earners.

Through Crime and Fertility: Odedokun and Round (2001) acknowledged that “...there is a poverty trap or threshold below which there exists high fertility rate (say, motivated by old-age support), in preference to the alternative of investment in children’s education; i.e. quantity of children is preferred to quality”. Odedokun is saying that highly unequal economies experience high fertility rates as the grants that succeed birth for the poor are a greater incentive than attempting to attain expensive education, this applies especially in developing countries where education is not free and there are significant poverty levels. Furthermore, crime rates tend to be high in unequal economies due to corruption and other criminal activities that hamper growth.

3.3) A Global Econometric Perspective

Using pooled data of 138 countries over the 1990 – 2007 period, this paper will now employ basic econometric techniques to statistically observe the view that income inequality has a negative effect on growth by examining linear trends. The following analysis is not an in-depth technical analysis, but rather a simple illustration of the statistical relationship between income inequality and growth.

A sample of 138 countries which vary between first world (developed) and third world (developing, in some cases poverty stricken) was taken from continents all over the world. Observing all countries together may be misleading as developed nations won’t react the same way as undeveloped nations to an unequal distribution of income. Therefore four regression plots have been constructed in order to avoid observing ‘apples with pears’, 2.1 being a plot for the top 45 HDI ranked countries, 2.2 being a plot for the bottom 45 HDI ranked countries. Figure 2 is a comparison of 2.1 and 2.2, how inequality affects relatively more developed countries against its effects on relatively undeveloped countries. Figure 3 is a plot for all countries in the sample giving us a global perspective of how income inequality affects growth overall.

Figure2: Comparative Regression Plot of Top 45 and Bottom 45 Countries on the HDI Development Ranking

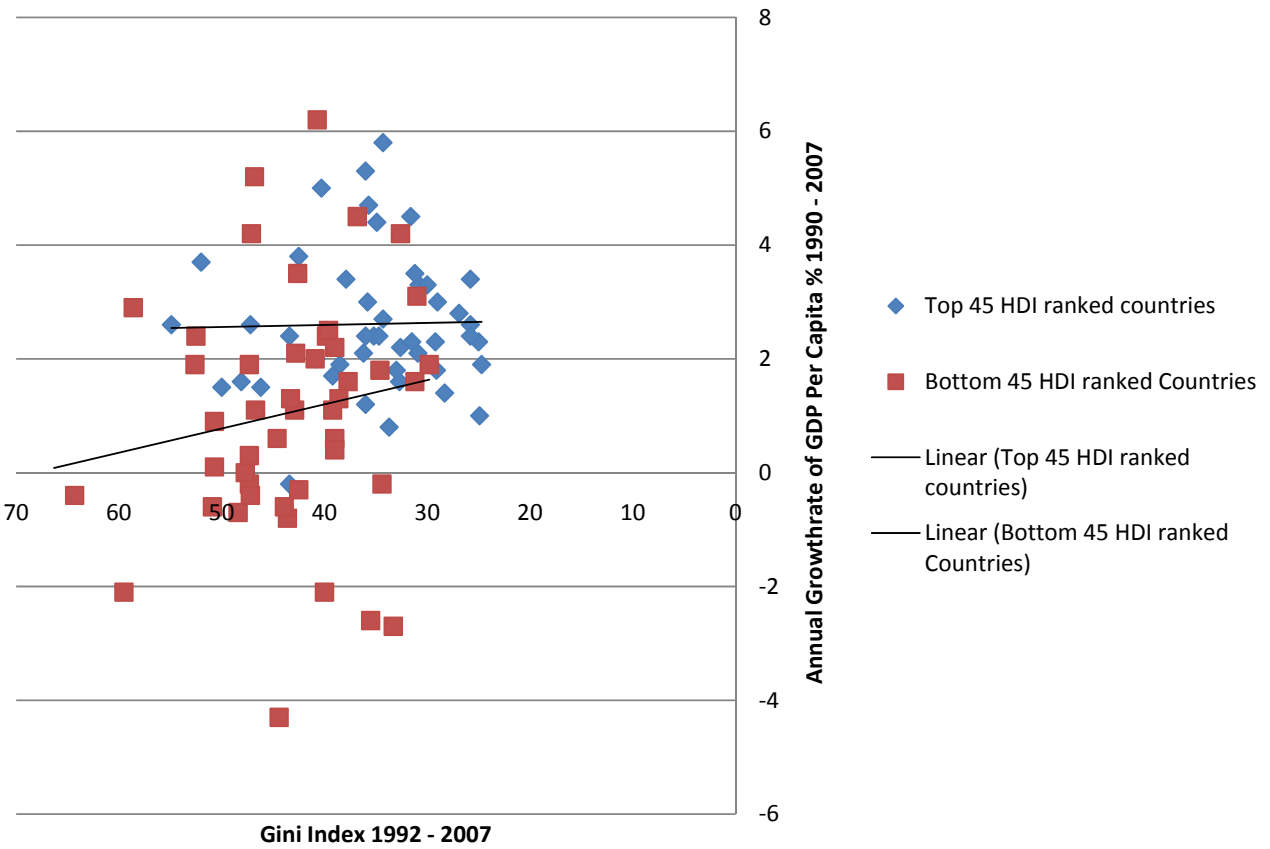


Figure 2.1 : Regression Plot for Top 45 HDI Ranked Countries

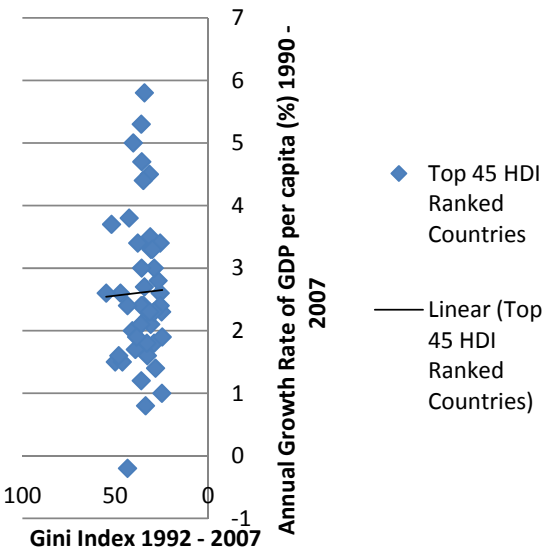


Figure 2.2 : Regression Plot for Bottom 45 HDI Ranked Countries

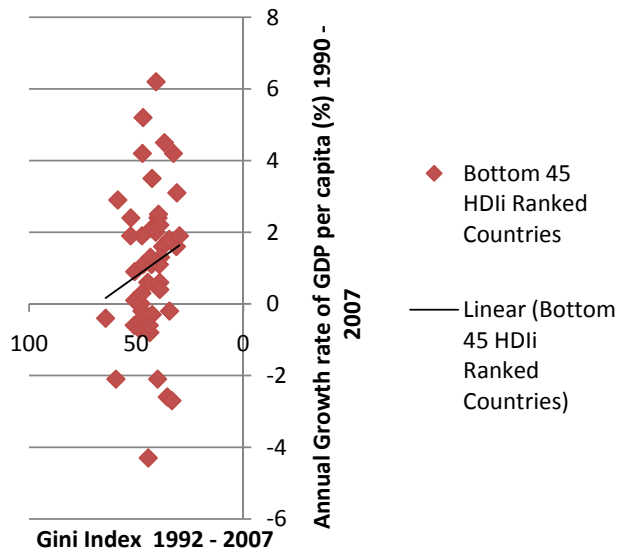


Figure 3 : Regression Plot for 138 Countries ranked by the UNDP 2009 Human development Report



Source: The Data used by the Author to plot the above regression scatter diagrams (Figure’s 2, 2.1, 2.2 and 3) was obtained from the *UNDP 2009 Human Development Report* – <http://hdrstats.undp.org/en/indicators/153.html>.

In Figure 2.1, a negative linear relationship exists between growth and inequality in relatively developed countries, that is as inequality decreases from a Gini Index of 60 to 20, income per capita also increases at a slow rate. In Figure 2.2, a negative linear relationship exists between growth and inequality in relatively undeveloped countries too, however in this scenario as inequality decreases from a Gini Index of 70 to 30, income per capita increases at a faster rate than that of the relatively developed countries albeit at lower levels due to the smaller sizes of the developing economies.

“Countries with extreme inequalities of income, such as South Africa and Brazil, have Gini coefficients of around 0.60, while countries with relatively equal income distributions generally have ratios of between 0.20 and 0.35” Black et al (2008). The evidence above supports Black, Calitz and Steenkamps proposed range as can be seen by Figure 2 where the bottom 45 countries Gini Index ranges between 70 and 30 whilst the top 45 countries Gini Index ranges between 60 and 20.

Figure 3 illustrates the relationship between inequality and growth for the entire sample. The plot of 138 countries is consistent with the preceding regression plots and this essays view that income inequality is negative for growth. It shows that reduced inequality tending towards equality will lead to increases in growth as can be seen by the upward sloping linear trend line which where growth increases as Gini Indexes decrease from 75 to 25. It is important to note that all the illustrations above posses weak linear relationships yet consistent trends in favour of the inverse relationship between inequality and growth purported by this essay.

Table 1 is an example of the data used to construct the regression plots above. It incorporates the Top 5 and Bottom 5 countries ranked by the HDI. Looking at the Top 5 countries, it is evident that their Gini Indexes range from 25.8 to 35.2, whilst the Bottom 5 countries Indexes range from 39.6 to 43.9. The corresponding growth rates range from 2.1 to 5.8 and -0.8 to 2.5 respectively over the period. This small sample further supports the view that income inequality is bad for growth as larger Gini Indexes have corresponding lower growth rates.

Table 1: Income Inequality Data for Top 5 and Bottom 5 Countries¹ listed according to their HDI development rankings.

Annual growth rate of GDP per capita (%)			Gini index		
HDI Rank	Country	1990-2007	HDI Rank	Country	1992-2007
1	Norway	2.6	1	Norway	25.8
2	Australia	2.4	2	Australia	35.2
4	Canada	2.2	4	Canada	32.6
5	Ireland	5.8	5	Ireland	34.3
6	Netherlands	2.1	6	Netherlands	30.9
177	Burkina Faso	2.5	177	Burkina Faso	39.6
178	Mali	2.2	178	Mali	39
179	Central African Republic	-0.8	179	Central African Republic	43.6
180	Sierra Leone	-0.3	180	Sierra Leone	42.5
182	Niger	-0.6	182	Niger	43.9

Source: Adapted from *Human Development report, 2009*, Annual GDP growth rate per capita percentage obtained from 'Annual growth rate of GDP per capita (%)' table and Gini Index obtained from 'Meconomy and inequality' table.

4) Conclusion

This paper analysed the relationship between income inequality and growth using fundamental theory, empirical evidence and regression plots and a sample of data including 138 countries from around the world and found that income inequality reduces growth indeed as high inequality levels were coupled with low levels of growth. The evidence in this essay contradicted Simon Kuznet and Keynes's views on income inequality and growth and is more in line with Edison et al (2001)'s view that income inequality is bad for growth.

Income inequality affects growth through the political economy & tax, lack of investment in human capital, credit and capital markets, through high crime and fertility rates. This was supported by our data which showed that underdeveloped nations that are plagued by a majority of these factors have higher Gini Indexes and lower growth levels. Whilst the developed nations that are managing these factors through free education and stronger police and defence forces etc. have higher income levels. However even within the category of developed countries, as Gini indexes rise so too do income levels decrease. This essay therefore concludes that income inequality is bad for growth and that policy should be aimed reducing inequality in order to achieve higher growth levels.

¹ Table 1 serves as a representative example of the full sample for word count purposes, for the full 138 country table, kindly contact the author. Other countries not shown in the table include South Africa, United States, UK, Germany, Congo, Lesotho etc.

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