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Does Economic Development Require More Income Inequality? – Is the Kuznets Curve Still Valid?

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Abstract

In recent years, one important policy concern among researchers and policy makers is the possible impact of income inequality on economic development, especially on the rate of economic growth. The relationship between these two economic variables is very important, particularly in less developed countries, because high income inequality is a common characteristic in less developed countries. Therefore, a link between income inequality and economic growth could be adopted for clear understanding about this relation. This link will help to take appropriate economic policies to deal with income inequality, and to enhance economic growth in less developed countries. The evidence reviewed in this paper has not found any systematic relations between income inequality and economic growth. There is a wide variation among countries, based on their levels of development, on how inequality effects future growth. Empirical studies also show that Kuznets hypothesis is not valid for many countries.

Keywords: Income inequality, Economic growth, Kuznets hypothesis.

1. Introduction

In recent years, one important policy concern among researchers and policy makers is the possible impact of income inequality on economic development, especially on the rate of economic growth. The relationship between these two economic variables is very important, particularly in less developed countries, because high income inequality is a common characteristic in less developed countries. Therefore, a link between income inequality and economic growth could be adopted for clear understanding about this relation. This link will help to take appropriate economic policies to deal with income inequality, and to enhance economic growth in less developed countries. Previous studies have expressed divergent views about the impact of inequality on economic growth. While some have expressed positive views about the impact, others are even sceptical. Many economists argue that income inequality and resource accumulation within a small segment of population would result in higher economic growth in future. According to this proposition the poor would be benefited in future by redistribution of the accumulated resources. Future policies towards redistribution of resources after higher economic growth will eventually make every one better off than they were before. Recent studies also revealed a negative relationship between income inequality and future economic growth. One of the main arguments in favour of these studies is income inequality will lead to pressure for redistribution through distortionary taxes, hence reduces capital accumulation and economic growth (Samanta and Heyse 2006).

The relationship between income inequality and economic growth gained attention in the 1950's when Simon Kuznets presented his idea of an inverted-U relationship between level of economic growth and income inequality. Kuznets initially developed the hypothesis based on data estimating income distribution in a few industrialized and few poor countries and by studying trends in distribution in a few European countries over time (Perkins *et. al.,* 2001, p. 128). This hypothesis suggests that, at low levels of per capita income, inequality increases with rising per capita income and decreases only in the later stages of development with industrialization. Kuznets hypothesis was supported by time series data for developed countries while studies based on data of less developed countries produced conflicting results. According to Kuznets hypothesis, if income inequality falls as a result of high economic growth, less developed countries need not to be concerned with high inequality. If, however, high economic growth does not lead to reverse income inequality, it is important to understand the link between income inequality and economic growth. So, the theoretical justification of the Kuznets hypothesis, the empirical validity of this phenomenon still remains questionable (Samanta and Heyse 2006). In this backdrop the purpose of this paper is to analyze the relationship between income inequality and economic growth. The paper also tries to address the question whether the Kuznets curve

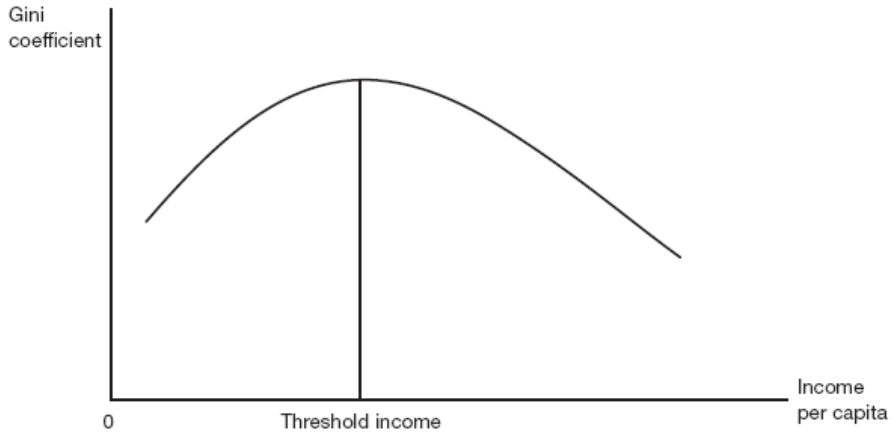
still valid or not? This paper does not provide a conclusive answer; rather reviews the theoretical arguments and empirical findings about the relationship.

The paper is organized as follows. Following introduction Section 2 provides a brief overview of Kuznets hypothesis. Section 3 discusses the measures of income inequality, while a trend in income inequality is reported in Section 4. In Section 5 problems of existing empirical works are presented, and then in Section 6 the question whether Kuznets curve is still valid or not is answered. Finally, concluding remarks is made in Section 7.

2. Kuznets Hypothesis[1]

Nobel prize-winning economist Simon Kuznets examined the historical relationship between income per capita and income distribution, one broad indicator of equity. While trends in a country's income inequality are an imperfect indicator of what is happening to the broader goals of development, rising and high levels of income inequality, if persistent, may be indicators of some underlying weaknesses in achieving development for all. Further the research Kuznets and others following in his footsteps have done has had a great influence on how many analysts think about the relation between economic growth, as measured by rising per capita income, and the achievement of the broader goals of development. Kuznets research suggested that at low income levels further economic growth tended to create more inequality, as measured by the Gini coefficient. As income per capita continued to increase, however, a critical threshold level of income was reached, and further economic growth and higher average per capita income tended to reduce a nation's overall income inequality. This relationship between the level of per capita income and income inequality is referred to as the Kuznets inverted-U hypothesis, from the shape of the curve shown in Figure 1.

Figure 1: The Kuznets Curve



The Kuznets hypothesis is often interpreted to mean that there is a minimum level of income that a country must achieve before greater equity and higher levels of development can be attained. Once that threshold level of income is reached, further increases in income contribute to greater equity, as shown by the falling value of the Gini coefficient after the peak of the curve is reached at the threshold income level. Prior to reaching the threshold level of income in Figure 1, however, rising income is associated with increasing inequality as shown by the rising Gini coefficient value associated with increasing income on the upward sloping portion of the curve. What the Kuznets curve suggests is that the greater income inequality associated with rising income per capita prior to reaching the threshold level of income is necessary if the threshold level of income is ever to be reached, after which income inequality will be reduced through additional economic growth. In other words, poorer countries at an early stage of their economic development can expect a deterioration in income inequality until the threshold level of income is reached. Things mush get worse before they can get better and higher level of development is attained.

Kuznets inverted-U hypothesis sometimes has been interpreted as something of a law of economic growth and development. Nations wishing to promote equity and human development in the wider sense can best do so by increasing income per capita. Initially at income levels below the threshold level rising income per capita makes income inequality worse, that is the price that must be paid both to attain higher average income and to eventually reduce inequality. There is no apparent necessity to target development goals or poverty reduction per

se if one accepts this view. The short-term loss in equity that accompanies economic growth before the threshold level of income is reached is the necessary cost of progress over the longer haul. From this interpretation of the Kuznets curve, growth and development are not rival goals. Economic growth promotes development and equity in income over the longer term, even if there would seem to be a short-term trade-off.

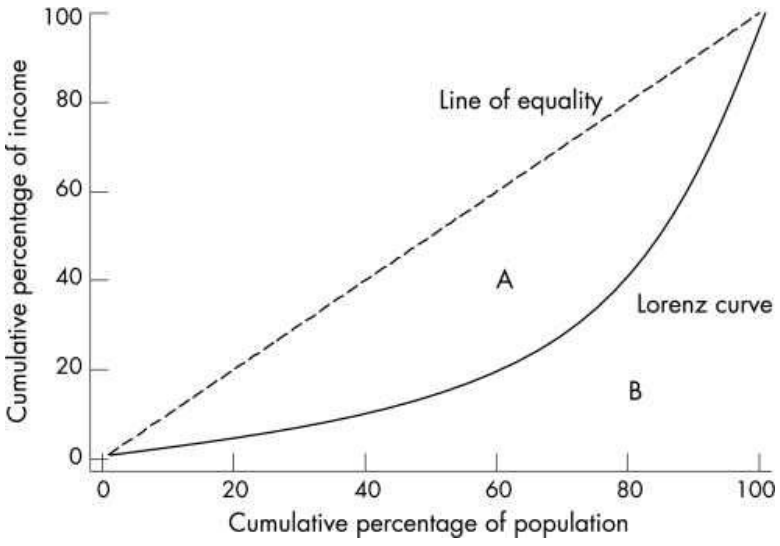
Kuznets postulation was a migration-based model where there is a population drift from the agricultural sector (with almost the same level of income and therefore less inequality) to the industrial sector where average income and inequality are very high. This implies, in the early stages of development, labour drift from the rural areas dominated by agricultural activities with low wages to the urban high-wage industrializing sector tend to increase both income and inequality within the two sectors. However, in later stages of development, aggregate income would increase due to the absorption of the surplus and unproductive labour in the agricultural sector, thus making the sectors productive and decreasing inequalities in the long-run.

3. Measures of Income Inequality

To measure the income inequality of a country and to compare it with other countries a variety of strategies exist. Among them more popular measure of income inequality are Lorenz curves and Gini coefficient. A Lorenz curve is commonly used to analyze personal income statistics. It shows percentage of total income received by the cumulative percentage of total population in an economy. To draw a Lorenz curve, at first, individuals or households are categorized into 5 or 10 groups, according to their levels of income. After that income of each group is calculated and expressed as percentage of GDP. Next researchers plot the share of GDP received by these groups cumulatively. In order to draw a Lorenz curve, both the income recipients on the horizontal axis and percentage of income on the vertical axis must be ranked from the lowest to the highest. When income distribution is perfectly equal among individuals the Lorenz curve is a 45 degree line (diagonal), called the line of equality. On the contrary, when income distribution is perfectly unequal the Lorenz curve coincides with the horizontal and vertical axes, called the line of inequality. If the line is deeper, bends further away from the 45 degree line, the distribution of income is more unequal. Figure 2 represents a hypothetical Lorenz curve.

Another measure of income inequality is Gini coefficient, which is simply a quantification of Lorenz curve. It is simply the ratio of the area between the line of equality and Lorenz curve, and the area beneath the line of equality. In Figure 2 it is depicted as area A divided by area A+B. Gini coefficient can vary from 0 to 1. A coefficient of 0 reflects that everyone has the same income and in this situation the Lorenz curve would follow the line of equality. A coefficient of 1 reflects that one person has all the income and everyone else has zero income and the Lorenz curve follow the line of inequality. In general, the Gini coefficient below 0.3 means the optimal state; the coefficient between 0.3 and 0.4 refers to the normal state, the figure above 0.4 refers to the warming state and the one reaching 0.6 means the dangerous stat and a social turmoil is about to happen at any moment (Mekenbayeva and Baris 2011, p. 7).

Figure 2: The Lorenz Curve



3. Income Inequality and Economic Growth: A Survey of Literature

The relationship between income inequality and economic growth is a complex issue and for many years the issue has attracted great interest of economists. "The issue also has clear ramifications as to whether countries or regions should strive to stimulate economic growth through stronger economic incentives, which are typically associated with more inequality, or whether they should strive for less inequality and enhance social stability to foster growth" (Fallah and Partridge 2006, p. 1). A large number of studies, using different models containing different variables, examined whether there exists any significant relationship between income inequality and economic growth. These studies have shown divergent views and ended up with conflicting conclusions about the relationship. Traditional economic theory is of the view that income inequality may account for economic growth for three reasons:

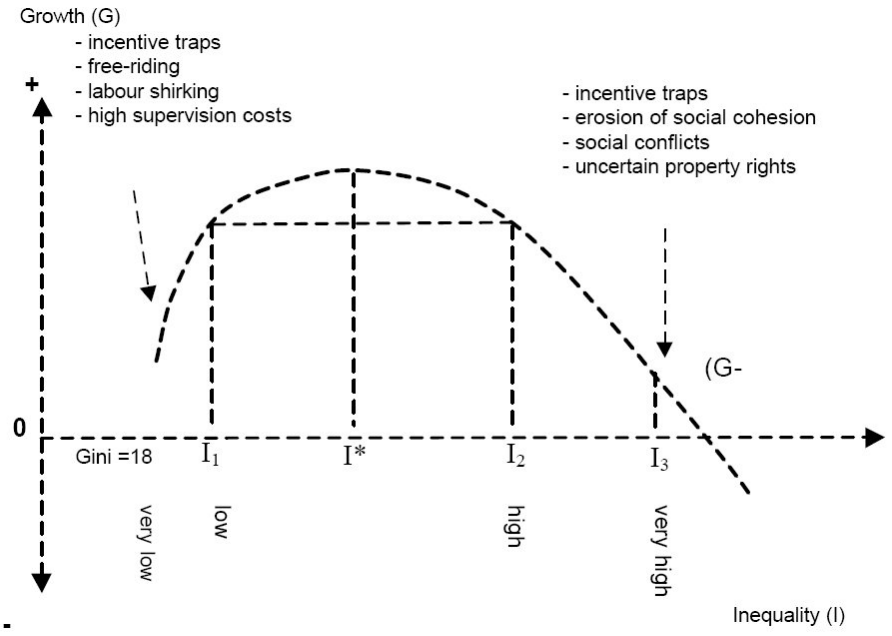
i. Firstly, according to Caldor's hypothesis, the marginal propensity to consume of the rich is less of their income than the poor, resulting in higher savings. Since growth rate is positively related with national savings, economies with unequal distribution grow faster than economies characterized by more equitable distribution;
ii. Secondly, investment projects often involve large sunk costs for setting up of new industries or the implementation of innovations. In the absence of effective capital markets in the developing countries, concentrated distribution of wealth is a pre requisite to cover such large sunk cost; and
iii. Finally, a society committed to equality may foster a wage policy which discourages the entrepreneurship (Samanta and Heyse 2006; Mekenbayeva and Baris , 2011).

Income inequality and the concentration of wealth within a small proportion of the population are thought to be the panacea to stimulate higher economic growth in the future. The poor majority are assured of future redistribution of the accumulated wealth through the "trickle down" effect. This makes income inequality somehow "acceptable" in many developing countries as a necessary evil in the development process. On the other hands there are two main arguments as to why income redistribution, to achieve a more equal distribution of income, will reduce the rate of economic growth:

i. Firstly, one of the main tools for redistribution is progressive income tax, a high income earner will pay a higher tax, has a negative impact on incentives. This might results to reduce in investment which leads to reduce in work effort.
ii. Secondly, as high incomes tend to have higher savings, redistribution is likely to reduce savings, which may have direct effect on investment and subsequent growth (Knowles 2001, pp. 2-3).

Bigsten and Levin (2000) reviewed the literature dealing with the relationship between economic growth, income distribution, and poverty. In their review of the literature they did not find any systematic patterns of changes in income distribution during recent decades or any links from fast growth to increasing inequality. However, the majority of the recent empirical evidence tended to confirm a significant negative correlation between income inequality and economic growth. By reassessing the relationship between inequality and economic growth, Forbes (2000) challenges the current belief that income inequality has a negative relationship with economic growth for 45 countries observed during 1966-1995. Using an improved dataset on income inequality, she found in her analysis that an increase in income inequality has a significant positive relationship with subsequent economic growth.

Figure 3: Inequality and Growth

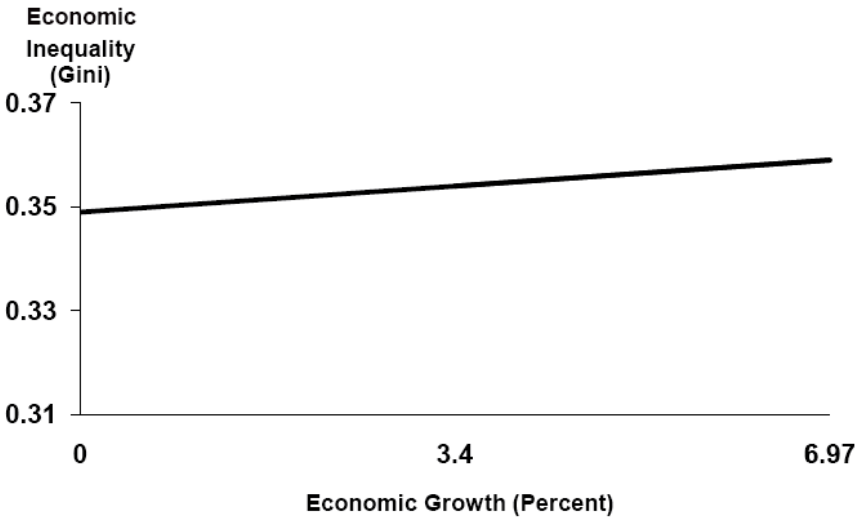


Source: Cornia and Court (2001)

Cornia and Court (2001) mentioned that the relation between inequality and growth differs according to inequality range. They suggest that there is an "efficient inequality range" for each country within which growth is maximized. The "efficient inequality range" varied widely by country to country based on their economic structures. Both very high egalitarianism and very high inequality cause slow growth (Figure 3). They also mentioned that in a society with an equitable distribution of income, growth is adversely effected. The reasons for this adverse effect are: too much compression of wage distribution as this led to the demand for low-skilled labor drying up, reduce work incentives and increase labor shirking and free-riding behaviour. As an instrument of equitable distribution, high marginal tax rate on workers imposed by the state may also reduce the incentives of workers. The impact on growth may also be negative when income inequality level is very high. Rent-seeking and predatory activities have a tendency to rise and the work incentives of the asset-less poor decrease. For example, unequal distribution of land in rural economies faces very high shirking and supervision costs, also economically fragile lands occupied by the landless poor are erode. As a result compared to more equitable agrarian economies, these economies tend to be less efficient, even though they enjoy positive economies of scale in case of marketing, processing and shipping. Unequal distribution of assets has negative effects on growth through other channels as well. As inequality increases, fertility is likely to rise and human capital investment fall, both reducing growth. There may also be implications through political channels. Inequality may lead to socio-political instability with negative implication for economic efficiency, macroeconomic stability and growth (Cornia and Court 2001, p. 23).

Cornia and Court (2001) suggest that public policy should target an efficient inequality range and avoid the extremes. Although there are wide variations across countries, efficient inequality range approximately lies between the values of the Gini coefficients of 0.25 and 0.40. The authors also figured out a precise shape of the inequality-growth relationship shown in Figure 3. The shape of this figure varies country to country on the basis of their resource endowment, history, past policies on the distributions of physical and human capital and other factors. In order to reduce poverty at a faster rate, a country should choose the lowest level of inequality (I_1) within the efficient inequality range (I_1-I_2) as stated in Figure 3. This strategy allows a country to achieve same level of growth but higher rate in terms of poverty reduction (Cornia and Court 2001).

Figure 4: Income Inequality and Economic Growth in USA



Source: Scully (2008)

Barro's (2000) empirical evidence indicates that inequality is bad for growth in poor countries and good for growth in rich countries. Countries with per capita GDP below US$ 2000 (1985 US$) experience a fall in GDP growth rate with greater inequality. However, GDP growth rate rises with inequality for countries with per capita GDP above US$ 2000. This indicates that inequality as a stimulus for growth is either positive or negative depending on the level of development of the country. Empirical evidence for United States indicates that income inequality has increased over the past few decades. Over the 1960-1990 period, the Gini coefficient ranged from a low of 0.335 (1968) to a high of 0.3826 (1989), a difference of 0.046 (Figure 4). A one percentage-point increase in economic growth increases the Gini coefficient by 0.00075 point, for example 0.35 to 0.35075, which indicates that a trade-off exists between economic growth and the income distribution (Scully 2008).

4. Changes in Income Inequality

Based on the evidence on World Income Inequality Database (WIID), Cornia and Court (2001) highlight some important trends of income inequalities over time. A trend in the distribution of income measured by Gini coefficient during the period of 1950s and 1990s for 73 developed, developing and transitional economies is summarized in Table 1. Within this period, 48 out of 73 sample countries experience an increase in inequality. In contrast, 16 countries experience a stable inequality which includes Brazil, India, Bangladesh and Indonesia. However, WIID show inequality in India, Bangladesh and Indonesia has been raised since 1998. Only 9 out of 73 sample countries experience a fall in inequality within the period of 1950s and 1990s. Inequality as well as head count poverty have been increased sharply in the former soviet bloc. Within this bloc, the number of people living below poverty line increased from 14 million in 1989 to 147 million in 1996. Most of the Latin American countries and some of the African countries also experience an increase in inequality in which the inequality was already in high levels. In case of China both inequality and economic growth have been increased sharply. A number of South and East Asian countries, which in the past has been able to achieve growth with equity recently experiencing income inequality. In addition, incomes were observed in the majority of OECD countries except France, which has reduced inequality gradually over the long time. As mentioned in Table 1, within the developing country group Jamaica, South Korea and the Philippines reduced inequality substantially (Cornia and Court 2001, p. 9).

Table 1: Trend in Income Inequality for 73 Sample Countries from 1960s to 1990s

Inequality	Developed countries	Developing countries	Transitional countries	Total
Rising	12: Australia, Canada, Denmark, Finland, Italy, Japan, Netherlands, New Zealand, Spain, Sweden, UK, USA	15: Argentina, Chile, China, Colombia, Costa Rica, Guatemala, Hong Kong, Mexico, Pakistan, Panama, South Africa, Sri Lanka, Taiwan, Thailand, Venezuela	21: Armenia, Azerbaijan, Bulgaria, Croatia, Czech Rep, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Macedonia, Moldova, Poland, Romania, Russia, Slovakia, Slovenia, Ukraine, Yugoslavia	48
Constant	3: Austria, Belgium, Germany	12: Bangladesh, Brazil, Cote d'Ivorie, Dominican Rep., El Salvador, India, Indonesia, Puerto Rico, Senegal, Singapore, Tanzania, Turkey	1: Belarus	16
Declining	2: France, Norway	7: Bahamas, Honduras, South Korea, Malaysia, Philippines, Tunisia	0	9
All	17	34	22	73

Source: Cornia and Court 2001, p. 8

Table 2 shows that within the increasing inequality country group, 29 out of 48 countries experience U-shaped trend in the distribution of income. These 29 countries account for 55 percent of sample's population and 73 percent of the overall GDP based on purchasing power parity (PPP) of the sample countries. The rest 19 countries in this group do not confirm the U-shaped trend only account for 4 percent of world population. The falling inequality country group including 9 countries account for only 5 and 9 percent of sample's population and GDP based on PPP respectively (Cornia and Court 2001, p. 8).

Table 2: Trends in the Distribution of Income from 1950s to 1990s

	Sample countries in each group	Share of population of sample countries (%)	Share of world population (%)	Share of GDP-PPP of sample countries (%)	Share of world GDP-PPP (%)
Rising inequality	48	59	47	78	71
of which U-shaped	29	55	44	73	66
No trend	16	36	29	13	12
Falling inequality	9	5	4	9	8

Source: Cornia and Court 2001, p. 7

5. Data Problems with Existing Empirical Works

The major problem of the existing empirical studies on the effect of income inequality is the uncertainty about the data accuracy. According to Samanta and Heyse (2006) there are some obvious problems with existing data set. It is widely believe that studies conducted before the release of the Deininger and Squire (2006) data set, used data of dubious quality. The data set constructed by Deininger and Squire was based on the existing survey of income and expenditure, and compiled those into a single "high quality" panel, offering 682country/year

observations since 1950. The data have to meet three main criteria to be eligible to include in that high quality data set. The criteria are as follows:

i. *Household or Individual as Unit of Observation*: The data must be based on actual observation of individual unites drawn from household surveys, rather than estimates derived from national account statistics;

ii. *Comprehensive Coverage of Population:* The data on inequality, even if drawn from household surveys, must be representative of the whole population rather than covering, for example, the economically active individuals, wage earners, or tax payers, or that cover only urban population; and

iii. *Comprehensive Measurement of Income or Expenditure:* The measure of income and expenditure must include income from self employment, nonwage earnings and nonmonetary income.

Deininger and Squire (2006) data set is now a standard reference, on which a large number of papers have been based (Galbraith and Kum 2002, p. 2). They consider 2,600 observations, but only 682 meet the above three criteria and included in their high quality data set. Some studies like Persson and Tabellini (1994), Alesina and Rodrik (1994), Clarke (1995), Birdsdall , Ross and Sabot (1995) and Perotti (1996) used data in their analysis that do not satisfy to be included in their high quality data. Another problem is that all the previous empirical work examining the effect of inequalities on economic growth measures data on inequality in an inconsistent way. For example, Gini coefficients can be measured either for the distribution of income before tax, distribution of income after tax or the distribution of expenditure. The unit of measurement can be the individual or the household. It is important to use the distribution of income/expenditure data measured by similar method while making cross country comparisons (Knowles 2001, pp. 4-6).

Cornia and Court (2001) found that when consistently measured data on gross income are included in a cross-country growth regression there is no evidence of a significant correlation between inequality and economic growth. But, when consistently measured expenditure data are used, there is evidence of a significant negative correlation between inequality and growth. Many studies have found evidence of a negative correlation between these two variables although those studies have used data that have not been measured in a consistent manner. Cornia and Court confirm that there is a negative correlation between inequality and growth across countries, but only when the focus is on inequality after redistribution has taken place.

6. Is Kuznets Curve still Valid?

Initially the Kuznets hypothesis was established by analyzing cross section data for a number of countries but the hypothesis was not sustained as a law because it was not valid for many of the individual countries. Some countries, for example Brazil, experienced an increase in inequality along with economic growth even after the threshold level of income. On the other hand, inequality in some countries fall sharply with economic growth even a well below threshold level of income. Sri Lanka is a best example of such a country who not only improves equity but also achieves a better score of human development index (HDI) measure at low income level. Therefore, critics of the Kuznets hypothesis argue that its U-shape comes not from progression in the development of individual countries, but rather from historical differences between countries. It does not imply that all countries, especially late developers, must necessarily tolerate or even promote increasing inequality to achieve economic growth (Cyper and Dietz 2004, p. 60).

Although there are many theoretical models exist supporting Kuznets hypothesis, empirical evidence is still a matter of controversy. Until 1970s, the relationship that Kuznets curve show, was strongly recognized by empirical works but later on this relation doubted over time. Deininger and Squire (1998) test the Kuznets hypothesis using both cross-country analysis and country specific time series analysis. At first they construct a high quality data set compared to previous available data. Their high quality data are fairly comparable across countries for several points in time. Their analysis found no strong evidence in support of an inverted-U curve, neither in the cross-country analysis nor in the country specific analysis. Deininger and Squire also failed to establish the link from inequality to growth and found that the level of initial income inequality was not a robust explanatory factor of growth. Using data for 76 countries for the period of 1960 to 1992, Jha (1996) found evidence in favor of Kuznets curve. Bulir (2001), Milanovic (1994) and Lin *et. al.,* (2006) also support for the Kuznets curve. However, Tam (2008) uses the high quality data set for 84 countries and concludes that Kuznets curve is not valid.

There is evidence that even though there is relatively less inequality in developed countries as compared to developing countries, it is increasing in the advanced countries (Deininger and squire 1998). This defies Kuznets notion that at a certain level of development, inequality continuously declines as per the inverted-U shape curve. Deninger and Squire (1998) also stated that Kuznets relationship is absent in present-day Asian countries. This is made possible because of the now divisibility of current technology compared to earlier years where technological investments were bulky (an example is the steam engine) and could only be undertaken by the wealthy in society. Additionally, investments reforms and international mobility of capital allowed the feasibility of investments in the industrial sector by different segments of the society through different financing instruments that meet the needs of different investors. The East Asian Miracle has also been used to criticize the validity of the Kuznets curve. The rapid economic growth of eight East Asian countries between 1965 and 1990 result a decrease in absolute poverty. This phenomenon is contrary to the Kuznets curve. The link between growth and inequality is therefore broken.

7. Conclusion

The paper examines the relationship between income inequality and future economic growth by reviewing the literature. This paper also examined the validity of Kuznets curve based on available empirical studies. The evidence reviewed in this paper has not found any systematic relations between income inequality and economic growth. There is a wide variation among countries, based on their levels of development, on how inequality effects future growth. It is also supported by literature that there is an inequality range, also differ substantially country to country, within which economic growth is maximized. Therefore, policy makers can target an inequality level within the "efficient inequality range" based on country's policy objectives. It is also found that, in terms of growth performance, inequality is bad for less developed countries but good for developed countries.

It is a common knowledge that inequality is higher in poor countries than in developed countries confirming Kuznets position. However the empirical studies show that Kuznets curve is not valid for many countries. Some countries experiences an increase in income inequality along with economic growth after the threshold level of income, while other countries experience a negative relationship between inequality and economic growth even before the threshold level of income. The present-day Asian countries have also proven that the Kuznets curve is no longer relevant. However, although Kuznets curve has no longer universal relevance, it can still explain some of the inequalities that are observed in different countries. Studies of inequality and economic growth have been well conducted by many researchers. To search the actual relationship between income inequality and economic growth, still more work needed to be done.

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Notes

Note 1: This section has intensively taken from Cyper and Dietz 2004, pp. 58-60.