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Inequality, Trade Openness and Economic Growth in Asia

M Tariq Majeed*

Abstract

Using a panel data set for 18 Asian countries over the period 1970-2008, this study explores the relationship between economic growth and income inequality with special focus on the role of credit market imperfections in shaping the linkage. The study identifies credit market imperfections in developing countries as the likely reason for a positive relation between inequality and economic growth. Countries in the region with high financial intermediation tend to grow more as compare to low financial intermediation. Moreover, this paper finds evidence that more physical and human capital investment have statistically significant and positive effect on economic growth. Finally, openness to trade has been confirmed positive and significant in this region, thereby implying outward looking economies grow more.

JEL Classification: O15, O40, O47, E25

Keywords: economic growth; inequality; credit market imperfection; panel data

1. Introduction

In the 1950's and 1960's, economists such as Nicholas Kaldor and Simon Kuznets argued that there is a trade-off between reducing inequality and promoting growth. In the post World War period, however, many East Asian economies had relatively low levels of inequality and grew at unprecedented rates. In sharp contrast to this experience, many Latin American countries had significantly higher levels of inequality and grew at a fraction of the average East Asian rate. These trends promoted a surge of interest in the relationship between inequality and growth, and in particular, a reassessment of how a country's level of income inequality predicts its subsequent rate of economic growth [Forbes K (2000)].

There are different channels through which income inequality affects growth rates. Kaldor (1957) suggests that marginal propensity to save of the rich is higher than that of the poor, implying that a higher degree of inequality will yield higher aggregate savings, higher capital accumulation, and growth. Sain-paul and Thierry (1993) argue that in more unequal societies, the median voter will elect a higher rate of taxation to finance public education, which will increase aggregate human capital and economic growth.

In contrast, Persson and Tabellini (1994) and Alsenia and Rodrick (1994) emphasize the four main channels through which income inequality lowers growth rates. First, the impact of inequality on encouraging rent-seeking activities that reduce the security of property rights; second, unequal societies face more difficulties in collective action—possibly reflected in political instability, a propensity for populist redistributive policies, or greater volatility in policies—all of which can lower growth; third, the median voter in a more unequal society is relatively poorer and favors a higher (and thus more inefficient) tax burden; fourth, to the extent that inequality in income or assets coexists with imperfect credit markets, poorer people may be unable to invest in their human and physical capital, with adverse consequences for long-run growth.

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Galor and Zeira (1993) and Fisherman and Simhon (2002) found that under imperfect capital market, a higher inequality means more individuals facing credit constraints. Consequently, they cannot carry out productive investments in physical or human capital. These can take place in the short run or long run. Second, a worsening inequality generates a rise in the fertility rate among, and less investment in human capital of the poor.

Though a large number of empirical studies have attempted to explore the relationship between income inequality and economic growth¹, but there is as yet no consensus through out the economics profession on the relationship between income inequality and growth. Little attention has been paid to the role of credit market imperfections in growth inequality relationship. Most of earlier studies that highlight the role of credit market imperfections in growth inequality relationship used OLS to estimate the cross-country growth regression, which has a problem of omitted variable bias. Secondly, sample selection remained a problem in most of earlier studies due to limited availability of comparable inequality statistics. The resulting estimates of most of these studies found a negative coefficient on inequality suggesting countries with a more equal income distribution (that is a lower Gini index) tend to have higher levels of income².

This study attempts to address these problems by using 2SLS estimation technique and relatively more comparable statistics on growth and inequality and adds to this emerging literature by addressing to the following questions for 18 selected Asian countries: (1) Is inequality harmful for growth? (2) Does high financial intermediation enhance economic growth? (3) What is the interactive effect of high financial intermediation level of economies and inequalities on growth? (4) Does openness to trade promote economic growth?

Rest of the discussion is structured as follow. Section 2 provides a review of related literature on growth, inequality, openness and credit market imperfection. Section 3 presents an analytical frame work for the study and a discussion on data. Section 4 put forwards results derived from the research questions and a comprehensive discussion on these results. Finally, conclusion with some policy implications has been provided in section 5.

2. Review of Literature

Empirical research on the relationship between income inequality and economic growth started in 1955 when Simon Kuznet published his study. Kuznet composed data from three developed countries-USA, Germany and Britain. According to Kuznet hypothesis, income inequality increases in the initial phase of development and then decreases in the course of development. Deininger and Squire (1996) using the data for 108 countries over the period 1960-1974 found no systematic relationship between growth and changes in aggregate inequality. According to their analysis, periods of aggregate growth were associated with increased inequality in forty three cases and with a decrease in inequality in forty five cases. Similarly, periods of economic decline were associated with increased inequality in five cases and with a more equitable distribution of income in two cases. The simple relationship between current as well as lagged income growth and the change in the Gini coefficient is insignificant for the whole sample as well as for sub samples defined in terms of country characteristics like rich or

¹ Ravallion (1997), Dollar and Kraay (2001), Barro R. (2000), Deininger and Squire (1996), Deininger and Squire (1998) etc.

² Galor and Zeira (1993), Banerjee and Newman (1993), Aghion and Bolton (1997) and Person and Tabellini (1994), King and Levine (1993), Galor (2000) etc.

poor, equal or unequal, fast-growing or slow-growing economies, suggesting no strong relationship between growth and changes in aggregate inequality.

Forbes (2000) found positive relationship between inequality and growth. The author argued that most likely reasons for the contradiction of results are country specific, omitted variable bias, data quality issues and length of period under consideration. In order to overcome such problems, the author used fixed effect and random effects model and the sample contained 45 countries whose income inequality data was deemed to be of high quality. The author also concluded that in the long run the relationship is negative while it is positive in the short or medium run. In a recent study, using a sample of 65 developing countries Garbis (2005) also found a positive relationship between inequality and growth. However, this study ignores the role of trade openness in explaining economic growth in developing world.

Alesina and Rodrick (1994), Persson and Tabellini (1994), Clarke (1995) found negative relationship between growth and inequality. These studies were mainly based on the estimation of convergence equation in which income inequality variable was added to the set of explanatory variables to explain differences in growth rates across countries. But due to scarcity of data on income inequality, most of these studies examined the effect of income inequality in 1960 on the average growth rate of per capita income over the period 1960-90. The Persson and Tabellini data set (1960-1990) also included several countries like Burma, Chad, Cyprus, Benin, Iraq, Lebanon etc. for which they were unable to collect the data of acceptable quality.

Galor and Zeira (1993), Banerjee and Newman (1993) and Aghion and Bolton (1997) found that inequality lead to lower economic growth because of credit market imperfections. They argued that in the short run the relationship might be positive but in the long run, more income inequality hampered economic growth. In the situation of market imperfections, the poor people do not borrow due to lack of enough collateral. Thus, poor people do not have the same chances in life as richer people because they cannot provide a good education to their children, however talented they may be, or because they can't get loans to start up a business. Countries with a high poverty headcount or with unequal distribution of wealth thus underutilize their productive and growth potential to a greater degree than countries with fewer poor people or with a more equitable distribution.

Barro (2000) using data of 84 countries from Deininger and Squire (1996) data set, found that the empirical results are sensitive to the specific choice of sample of countries. In the case of transition economies, there is clear evidence that inequality has a negative and significant effect on growth. The results are surprisingly strong to the use of three alternative inequality data sources, different specifications, and estimation methods. The author used 3SLS, claiming that the use of fixed effects eliminated the main (cross-sectional) source of variation in the data. With random effects, no significant relationship between inequality and growth is found for the whole sample. Yet, when the sample is divided into sub-samples of poor and rich countries, the inequality growth relationship is negative in the sample of poor countries but positive in the sample of rich countries. These results suggest that the inequality-growth relationship is likely to vary across samples.

The author also discussed theoretical analyses of the macroeconomic relationship between income inequality and economic growth and argued that credit market imperfection might be the possible reason of positive relationship between inequality and economic growth in short time period. The credit-market imperfections typically reflected asymmetric information and limitations of legal institutions. For example, creditors might have difficulty in collecting on defaulted loans because law enforcement was imperfect. A bankruptcy law that protected the

assets of debtors might also hamper collection. With limited access to credit, the exploitation of investment opportunities depended, to some extent, on individuals' levels of assets and incomes. Specifically, poor households tended to forego human-capital investments that offered relatively high rates of return. As the negative impact of decline in human capital investment on economic growth occurred in long run, so it might be possible that in short run the high positive returns on physical capital dominate over the negative impact of decline in human capital on overall growth. But in long run, the negative effects of decline in human capital on overall economic growth are highly strong as compared to the positive effect of physical capital investment by few people of society leading to leave a strong negative impact on overall growth rate.

The idea that trade liberalization has an impact on the country's growth is not new and goes back at least to Adam Smith. New classical model based on constant and decreasing returns to scale as in Solow (1956) and Swan (1956) predicted that a country would have static gains from lowering its trade barriers. Most of the recent studies including Dollar (1992), Edwards (1993), Sachs and Warner (1995) and Dollar and Kraay (2001a) have found a positive association between trade liberalization and growth. There are number of channels through which trade promotes growth rates by allocating the resources more efficiently. Trade promotes growth by encouraging economies to specialize and produce in areas where they have relative cost advantage over other economies. Overtime, this helps economies to employ more of their human, physical and capital resources in sectors where they get returns in open international markets, boosting productivity and returns to workers. Trade also expands the markets that local producers can access, allowing them to produce at most efficient scale to keep down the costs. Trade disperses new technologies and ideas, increasing the productivity of local workers and managers. Technology transfers through trade are also more valuable for developing countries, which employ less advance technologies and have little capacity to develop new technologies themselves. Removing trade barriers e.g. tariff on imports gives consumers access to cheaper products, increasing their Purchasing power and living standard. It also provides producers an access to cheap inputs, reducing costs and boosting their competitiveness.

Tullock (1967) noted that the welfare costs of protectionism may actually be a much larger once the costs of monopoly power, tariffs, rent-seeking activities or other pre existing distortions are all taken into account. Thus, removal of such distortions could significantly boost income. Grossman and Helpman (1990) argued that there could be a host of other dynamic gains to be had from trade and the introduction of competition in terms of scale economies, technological innovations, learning-by-doing effects, etc. which in turn lead to sustained rates of growth (not just one-off increases in income levels. Frankel and Romer (1999) in his study including 100 countries during the period since 1960 found that openness in general does have a statistically and economically significant effect on Growth.

Dollar and Kraay (2001a) employing a sample of 101 countries including 73 developing countries between 1975-79 and 1995-97 found that trade openness leads to declining inequality between countries, and declining poverty within countries. The poor countries that have reduced trade barriers and participated more in international trade over the past twenty years have seen their growth rates accelerate. In the 1990s they grew far more rapidly than the rich countries, and hence reduced the gap between themselves and the developed world. At the same time the developing countries that are not participating in globalization are falling further and further behind. Within the globalizing developing countries there has been no general trend in inequality. Thus, rapid growth has translated into dramatic declines in absolute poverty in countries such as China, India, Thailand, and Vietnam. OLS estimation results showed that in the

1990s the globalizing developing countries grew at 5.0% per capita; rich countries at 2.2% per capita; and no globalizing developing countries at only 1.4% per capita. While 100 percent increase in the trade share would have the cumulative effect of raising incomes by 25 percent over a decade.

3. Model, Data and Estimation Technique

4.1: Model

This paper estimates growth as a function of initial inequality, income, education, investment, inflation, openness and financial intermediation-a model similar to that used in most empirical work on inequality and growth. More specifically, I choose this model since it is identical to that used by Perotti (1996) and Forbes (2000) where former finds definite negative effect of inequality on growth and latter finds definite positive effect of inequality on growth. The change from Perotti (1996) and Forbes (2000) is the addition of credit market imperfection variable that used by Garbis (2005) and some other additional variables-openness to growth, inflation and population growth.

It is obviously possible to include a number of additional variables; however, this paper focuses on this simplified specification for three reasons. First, this model is typical of that used to estimate the effect of inequality on growth, so any discrepancy between this paper and previous work can not be explained by model specification. Second, since sample size is already limited by the availability of inequality statistics, and especially since panel estimation requires a large number of observations, the simple specification helps maximize the degree of freedom. Third, by focusing on stock variables (initial inequality and income) measured at the start of the periods, rather than flow variable measured throughout the periods, endogeneity could be reduced. To summaries, the growth model central to this paper is

$$Growth_{it} = \alpha_{it} + \beta_1 Inequality_{i,t-1} + \beta_2 Income_{i,t-1} + \beta_3 Education_{it} + \beta_3 Investment_{it} + \beta_4 Inflation_{it} + \beta_5 Openness_{it} + \beta_6 Inequality_{i,t-1} * HFI + \beta_7 HFI + \mu_i + \nu_t + \varepsilon_{it}$$

Where;

- $Growth_{it}$ = average growth rate of per capita GDP at 1993 prices & PPP adjusted;
 $Inequality_{i,t-1}$ = gini index in the previous period;
 $Income_{i,t-1}$ = natural logarithm at the beginning of the period of per capita GDP in dollars at 1993 prices and PPP adjusted;
 $Education_{it}$ = secondary school enrollment rate (in percent of the total secondary school aged population). This variable is used as a proxy to human capital;
 $Investment_{it}$ = share of gross capital formation in GDP;
 $Inflation_{it}$ = inflation rates, annual averages between two survey years, calculated using the IFS's CPI data;
 $Openness_{it}$ = It is measured as sum of exports and imports as percentage of GDP.
 HFI = a dummy variable equal to one for countries with a high level of

financial intermediation, zero otherwise;
 μ_i = it is a country-specific unobservable effect;
 v_t = it is a time-specific factor; and
 ε_{it} = it is the disturbance term.

4.2: Data

The Income inequality data may not be comparable across countries due to differences in definitions and methodologies. I use Gini coefficient to measure income inequality, which is one of the most popular representations of income inequality. It is based on Lorenz Curve, which plots the share of population against the share of income received and has a minimum value of 0 (case of perfect equality) and maximum value of 1 (perfect inequality). Missing values in Income inequality data are the major problem in cross country analysis. Many of developing countries have only one or two observations. Therefore, I expanded the existing database by including the comparable data on inequality from recent household surveys included in World Bank, UNDP, and IMF Staff reports.

To make the data more comparable, this study takes data on variables in the form of averages between two survey years. Per capita real GDP growth rates are annual averages between two survey years. A panel data for 18 developing Asian countries for the period 1970-2008 has been assembled with the data averaged over periods of three to seven years, depending on the availability of inequality data. The minimum number of observations for each country is three and the maximum, seven. That is, only countries with observations for at least three consecutive periods are included.

To measure credit market imperfection, this study constructs a dummy variable HFI equals to one for countries having high level of financial intermediation that is above median in the sample. Following King and Levine (1993), the level of credit market imperfections is represented by taking the summation of the share of broad money (M2) in GDP, and the share of credit to the economy in GDP. M2 as a percentage of GDP show broad money and is taken from line34 plus 35 of the IFS. Credit as percentage of GDP is the claims on the non private sector and is taken from 32d line of IFS. This study identifies credit market imperfection in low income developing countries as the likely reason for a positive relationship between inequality and economic growth.

To measure trade liberalizations, I add exports and imports and then divide it by gross domestic product. Data on imports and exports are the annual averages between two survey years. Data on exports and imports are derived from IFS database. Population growth rates are taken from the World Bank development reports. The secondary school enrollment is at the beginning of the period and derived from World Bank database. Data on the ratio of government expenditure and investment as shares of GDP are averages for the period between two survey years and come from the IFS³.

4.3: Estimation Technique

Ordinary Least Squares (OLS) has a problem of omitted variable bias. If region, country or some group specific factors affected growth rates, explanatory variables would capture the effects of these factors and estimates would not represent the true effect of explanatory variables. Baltagi (2001) proposes fixed effect econometric techniques to estimate panel data, which could avoid the problem of omitted variable bias. However, in case of lag independent variable this

³ Description of variables is shown in Appendix.

technique gives biased parameter estimates. This analysis is based on 2SLS technique of estimation. This technique addresses the issue of endogeneity that is covariance between independent variables and error term is not equal to zero and also addresses the problem of omitted variables bias.

4. Results and Discussions

Table 1: Parameter Estimates for Economic Growth, Inequality and Credit Market Imperfections

Independent Variables	Dependent Variable: Economic Growth
Initial Inequality	0.729 (2.82)*
Income	-4.168 (-2.88)*
Investment	0.169 (1.798)***
Inflation	-0.047 (-0.242)
Education	0.052 (1.224)
Openness	0.031 (2.017)**
Inequality*HFI	-0.849 (-2.363)*
HFI	35.166 (2.465)*
Population Growth	-1.994 (-2.94)*
No of Countries	18
R-squared	0.69
Adj. R-squared	0.66
D W Stat	1.70

Note: The t-statistics are given in parentheses (*), (**), and (***) indicate statistical significance at 1%, 5% and 10% levels respectively

The panel regression results regarding growth inequality relationship given in table1 confirm positive and significant relationship between growth and inequality. It implies that in this region high initial income inequality yields higher aggregate savings, capital accumulation and economic growth. Thus, capital accumulation turns out prime engine of economic growth as it is evident from more significant parameter estimate for investment as compare to human capital. Though human capital is also positive in explaining growth but it is less significant. The results also show negative and highly significant relationship between growth and initial income per capita expressed in U.S. dollars. It implies that keeping other factors constant, a country with less initial income per capita tends to grow faster than a rich country. Both openness to trade and high financial intermediation turn out positive and significant in explaining growth in the region. Openness to trade promotes growth by encouraging economies to specialize and produce in areas where they have relative cost advantage over other economies. Trade expands the markets that

local producers can access, allowing them to produce at most efficient scale to keep down the costs and it also disperses new technologies and ideas, increasing the productivity of local workers and managers.

It is expected that $\beta_1 > 0$, $\beta_6 < 0$, and $\beta_7 > 0$ meaning that the positive effect of inequality on growth is weaker in countries with high financial intermediation levels (or developed financial markets). The interaction term, Inequality*HFI (β_6), is negative and HFI (β_7) is positive and highly significant as expected. The coefficient of interaction term GINI*HFI is showing that more inequality in those countries that have relatively more developed financial structure lead to decline in economic growth. Countries with high initial inequalities in combination with high financial intermediation explains the fact that a majority of the population live in lower segment of the inequality and are unable to borrow due to lack enough collateral. On the other way, rich have better access for loans to finance physical investment. The lower investment in human capital translates its negative effect on economic growth. The poor people are not only unlikely to invest in human capital but in physical capital as well. So, high initial inequality coexisting with imperfect credit market means unlikely to invest in human and physical capital and hence economic growth declines. Galor and Zeira (1993) and Fisherman and Simhon (2002) argue that under imperfect capital market, a higher inequality means more individuals facing credit constraints. Consequently, they cannot carry out productive investments in physical or human capital. These can take place in the short run or long run. Second, a worsening inequality generates a rise in the fertility rate among, and less investment in human capital of the poor.

Following research questions posted by the study, I find out that inequality, in general, is not harmful for growth and negative impact of growth has been explained by combined effect of high financial markets and inequality where negative effect of less human capital investment carries negative consequences for economic growth. This study also confirms the positive effect of high financial intermediation on economic growth. Finally, openness to trade has been confirmed positive and significant in this region, thereby implying outward looking economies grow more.

Results of Wald Test

Table2: The Results of Wald Test on Parametric Restrictions

Null hypotheses	Chi-Square Statistic	Computed Rejection Probabilities
Regression coefficients of all the variables in the growth equation are equal to zero	982.77	0.000
Regression coefficients of the openness variables in the growth equation is equal to zero	4.06	0.04
Regression coefficients of the interaction term in the growth equation is equal to zero	5.58	0.01

I apply Wald tests on the various null hypothesis involving sets of regression coefficients. The results are shown in table 2. The P-value indicates that I reject the null hypothesis of all the variables in the growth equation are equal to zero.

5. Conclusion and Policy Implications

This study has been an attempt to reassess the relationship between economic growth and inequality with special focus on the role of credit market imperfection in shaping the linkage at aggregate level for selected 18 developing countries in the Asia region. The analysis confirms positive and significant relationship between growth and inequality. It implies that in this region high initial income inequality yields higher aggregate savings, capital accumulation and economic growth. The results also show negative and highly significant relationship between growth and initial income per capita expressed in U.S. dollars. It implies that keeping other factors constant, a country with less initial income per capita tends to grow faster than a rich country. Both openness to trade and high financial intermediation turn out positive and significant in explaining growth in the region.

Countries with high initial inequalities in combination with high financial intermediation explains the fact that a majority of the population live in lower segment of the inequality and are unable to borrow due to lack of enough collateral. Thus, poor people do not have the same chances in life as richer people because they cannot provide a good education to their children, however talented they may be, or because they can't get loans to start up a business. So, high initial inequality coexisting with imperfect credit market means unlikely to invest in human and physical capital and hence economic growth declines.

Credit market imperfection is found to be most important factor in growth inequality relationship. Due to limited access to credit, poor households tend to forego human-capital investments that offer relatively high rates of return. In this case, a distortion free redistribution of incomes from rich to poor tends to raise the quantity and average productivity of investment. As a result, a reduction in inequality raises the rate of pro poor economic growth.

The higher the level of both physical and human capital investment, the higher is the level of output per capita. A better-educated labor force can improve productivity and technological level in the economy, which have a long-run positive effect on economic growth. Therefore, government needs to take the responsibility for building up human capital and intergenerational dimension in the effects of education must be taken into account.

Policies must be based on a sound understanding of the factors that govern household decisions about schooling and of the means by which subsidized services can lead to better outcomes for the poor. Governments may create an environment that is conducive to growth. Macroeconomic policy should aim at stability, and openness towards the rest of the world. For all these efforts to be effective, the government must develop good institutions, and provide good governance.

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Appendix:

1. Description of Variables

Variable name	Definitions and Sources
Per capita real GDP	Per capita real GDP growth rates are annual averages between two survey years and are derived from the IMF, WDI and International Financial Statistics (IFS) databases.
Gini coefficient	It is a measure of income inequality based on Lorenz curve, which plots the share of population against the share of income received and has a minimum value of zero (reflecting perfect equality) and a maximum value of one (reflecting total inequality). The inequality data (Gini coefficient) are derived from World Bank data, UNDP and the IMF staff reports.
Secondary school enrollment	The secondary school enrollment as % of age group is at the beginning of the period. It is used as a proxy of investment in human capital and derived from World Bank database.
Investment	Investments as shares of GDP are annual average for the period between two survey years and are derived from IFS.
Inflation	Inflation rates, annual averages between two survey years, are calculated using the IFS’s CPI data.
Credit as % of GDP	Credit as % of GDP represents Claims on the non-financial private sector/GDP and is derived from 32d line of the IFS.
M2 as % of GDP	It represents Broad money/GDP, and is derived from lines 34 plus 35 of the IFS.
Trade Liberalization	It is the sum of exports and imports as a share of real GDP. Data on exports, imports and real GDP are in the form of annual averages between survey years.
HFI	HFI is a dummy variable having a value of one for countries with a high level of financial intermediation that is above sample median and 0 otherwise. The level of Financial Intermediation is determined by adding M2 as a % of GDP and credit to private sector as % of GDP.

2. List of Selected Countries in Asia

No	Country	No	Country
1	Bangladesh	10	Kyrgyz Rep.
2	China	11	Malaysia
3	India	12	Nepal
4	Indonesia	13	Pakistan
5	Iran	14	Philippines
6	Iraq	15	Sri Lanka
7	Jordan	16	Tajikistan
8	Kazakhstan	17	Thailand
9	Korea Rep.	18	Vietnam

3. Descriptive statics of variables

	Growth	Inequality	Investment	Inflation	Education	Openness	Population
Mean	3.51	38.73	25.08	11.95	57.80	74.22	1.76
Median	3.70	38.00	24.29	8.0	55.00	63.35	1.70
Maximum	9.50	51.50	40.77	110.0	100.0	228.88	4.20
Minimum	-6.80	30.50	14.57	1.0	20.00	13.64	-0.80
Std. Dev.	3.65	5.64	6.40	15.6	20.27	42.45	0.86
Skewness	-0.70	0.27	0.51	4.17	0.14	1.32	-0.007
Kurtosis	3.50	1.85	2.65	23.26	2.12	5.20	3.88
Jarque-Bera	7.67	5.59	3.99	1660.8	2.95	41.03	2.69
Probability	0.02	0.06	0.14	0.00	0.23	0.00	0.26
Sum	291.6	3215.0	2082.03	991.63	4797.4	6160.7	146.36
Sum Sq. Dev.	1094.3	2612.7	3358.40	20022.6	33673.6	147780.2	61.25
Observations	83	83	83	83	83	83	83
Cross sections	18	18	18	18	18	18	18

4. Parameter estimates with OLS, Fixed Effects and Random Effects

Variables	OLS	t-Statistic	Fixed Effects	t-Statistic	Random Effects	t-Statistic
Initial Inequality	0.06	0.94	0.03	0.21	-0.07	-1.2
Income	-0.62	-1.75	-2.05	-2.45	-2.13	-5.06
Investment	0.34	7	0.31	3.5	0.31	5.34
Inflation	-0.06	-2.93	-0.11	-4.37	-0.09	-3.26
Education	0.01	0.55	0.02	0.4	0.02	0.81
Openness	-0.01	-1.55	-0.01	-0.74	-0.00	-0.002
Inequality*HFI	-0.15	-2.04	-0.18	-0.96	0.01	0.2
HFI	5.15	1.83	-	-	-0.47	-0.18
Population Growth	-0.57	-1.51	-0.42	-0.29	-1.33	-2.41
R-squared	0.53		0.59		0.60	
Adj R-squared	0.48		0.54		0.55	
D-Watson stat	1.77		2.62		2.25	
No of Countries	18		18		18	