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In Pursuit of Inclusive Institutional Growth: A Comparative Pattern of Selected Asian Countries

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Abstract

The study compares less developed countries (LDCs) with middle developed countries (MDCs) in the retrospect of Inclusive growth embracement. Fixed effect and random effect (FEM) have been employed to compare the both data sets of countries and then based upon results, policies have been formulated which could accelerate inclusive growth in LDCs. Results suggest that growth acceleration and institutions alone doesn't have a significant impact on inclusive growth. On the other hand, if growth acceleration occurs in the presence of institutions, it leads to inclusive growth in MDCs& LDCs. Except for health quality, no independent variable has significant impact on inclusive growth in LDCs. Whereas, nearly all independent variables showed significant impact on inclusive growth in MDCs. Unlike MDCs, inclusive growth remains impervious in LDCs, particularly owing to the poor quality of education. Weak institutional structure further adds to the miseries of LDCs. The study suggests that LDCs are trapped at only necessary condition of inclusive growth i.e. GDP per capita income growth. If they wish to achieve high inclusive growth, they must also take care of sufficient condition of inclusive growth i.e. change in their institutional structure. This could be done by following the leading variables to inclusive growth; which includes primarily expansion in Health and educational quality.

Keywords: Fixed Effect and Random Effect Models, Growth Acceleration, Inclusive Growth, Institutions, Institutions, Interaction Terms. South Asian Countries

Introduction

More than half of the world's population is perching in Asia. Statistics manifests that Asia has accomplished remarkable stride in terms of economic growth over the last decades. However, much of the contribution in this growth is amid to largest economies of the world i.e. India or China. It is anticipated that if Asia can very soon enjoy a living standard of European countries if it keeps on maintaining growth rate of 7.3 % on average as during the year 2011, it can. But it is important to note that this is not possible only by concentrating on glossy growth rates but, by also accompanied with enormous reduction in poverty and reduction in income inequalities. Much of the inland and remote areas of Asia, still suffer economically and geographically which leads to their trapped economic potential. Asia is expected to face copious challenges in future which could be a hurdle in maintaining high growth. These challenges may include the weak institutional structure in low income countries such as Pakistan. Not only that but rising income inequalities despite of reduction in poverty added to the misery of Asia. Inclusive growth thus provides a pervasive expansion of economic, social and political opportunities to cater the demand of healthy living standards. This Paper examines the role of inclusive growth through the umbrella of institutions, compares different

income groups to formulate an appropriate policy for more equitable growth and development that raises standard of livings.

Despite of the fact that MDC (see table 1) has curtailed poverty i.e. to 9 percent in 2000s from 16 percent in 1990s; but their income disparities has also exacerbated to 1-2 percent on an average. On the other hand, LDC has been quite successful in shrinking both their income inequality and poverty growth rates. On the contrary, the magnitude of negative growth rate of inequalities (13%) is far less than growth rate change in poverty (70 %) for LDCs too. Development without exalting the living standards of people and reducing income and regional disparities will still leads to social, political and economic chaos. Thus, it is indispensable to look for factors that contribute to inclusive growth across countries.

Table 1: Poverty-Income Inequality comparisons

	Countries	LDC	MDC
Poverty headcount ratio at $1.90 a day	1990s	30.5	16.1
	2000s	9.16	9.2
	Change	-21.3	-6.93
GINI Index	1990s	38	38.7
	2000s	33.7	39.5
	Change	-5	0.5

Lower developed Asian countries having less than 3000 US $ Per-capita income includes a total of eight countries which are; Bhutan, Pakistan, Bangladesh, Kyrgyzstan, Cambodia, Philippines, Tajikistan and Vietnam. Middle income countries have 8 countries which are Iran, Kazakhstan, Sri Lanka, China, Indonesia, Malaysia, Thailand and India having more than 3000 USD per capita income. The countries from both groups have nearly similar characteristics. However, to have more comparative picture of the data, following figure 1(see table A5 in appendix) was constructed using the above definition income category. Note that in Table 1, Negative sign shows a positive situation as negative growth of poverty and inequality are desired and Vice a versa.

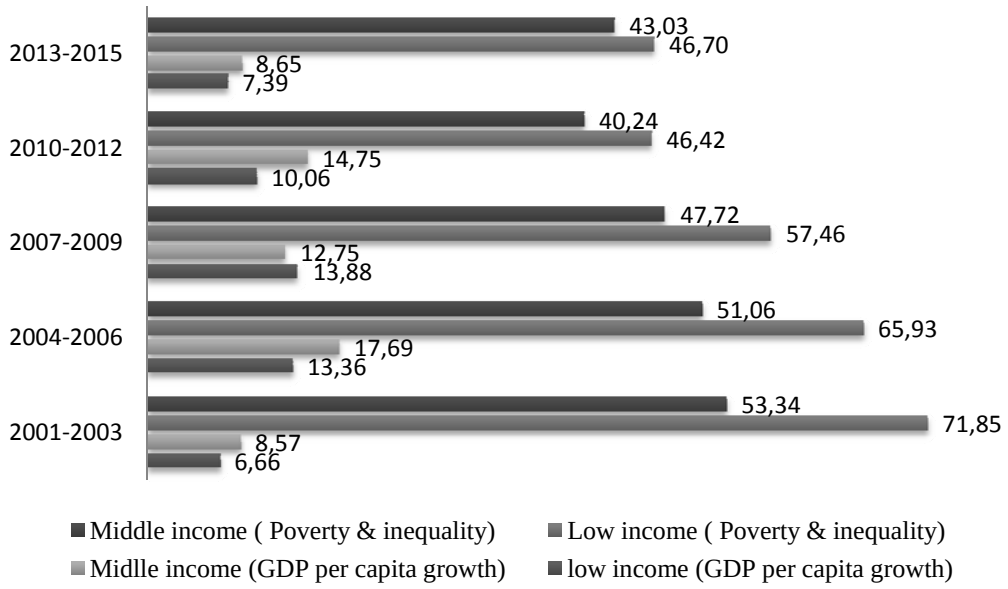

Figure 1: **Comparisons of Middle Developed & lower Developed countries**

For the years 2001-2003, middle developed countries showed a higher GDP growth rate of 8.5% as compared to lower developed countries having only 6.6%. Similarly, middle income countries showed a lower rate of poverty and income inequality i.e. only 53.3% & as compared to 71.85% for lower income countries. This clearly shows that not only middle income countries had higher GDP per capita growth than middle income countries but also higher inclusive growth in their region. Considering the next three year averages for 2004-2006, middle developed countries showed a higher GDP growth rate (PPP) 17.6% as compared to lower developed countries having only 13.6% similar to last three years. Correspondingly, middle income countries showed a lower rate of poverty and income inequality i.e. only 51.0% & as compared to 65.93 percent for lower income countries. This elaborates that not only middle income countries have had a higher GDP per capita growth than middle income countries but also higher inclusive growth in their region for over six years i.e. 2000-2006.

For the years 2007-2009, Middle developed countries showed a lower GDP growth rate 12.7% as compared to lower developed countries having only 13.8% unlike preceding six years (2000-2006). It was evident that inclusive growth will also worsen off in middle developed countries as result of low GDP growth rate. However, the figure for inclusive growth improved; poverty and income inequality lessened by 4 % points as compared to 2004-2006. In the same way, middle income countries showed a lower rate of poverty and income inequality in the years 2007-2009 i.e. 47.7% & as compared to 57.4% percent for lower income countries. Middle income countries have had higher GDP per capita growth than middle income countries but also higher inclusive growth in their region. Focusing the years 2010-2012, middle developed countries showed a higher GDP growth rate again of 14.5% as compared to lower developed countries having only 10.6%. Likewise, middle income countries showed a lower rate of poverty and income inequality i.e. only 40.3 & as compared to 46.42 percent for lower income countries. This also clearly shows that not only middle income countries had higher GDP per capita growth than middle income countries but also higher inclusive growth keeping the record of last ten years.

Lastly for the recent years 2013-2014, middle developed countries successfully maintained a higher GDP growth rate 8.6% as compared to lower developed countries having only 7.3%. Equally, middle income countries showed a lower rate of poverty and income inequality i.e. only 43.3 & as compared to 46.4 percent for lower income countries. It is important to note here that there is no points in inclusive growth from the last set of three years in case of low income countries. Concluding, the Figures above clearly depicts that middle income countries have not only maintained a higher GDP per capita growth rate but also remained successful in achieving inclusive growth as compared to lower developed countries.

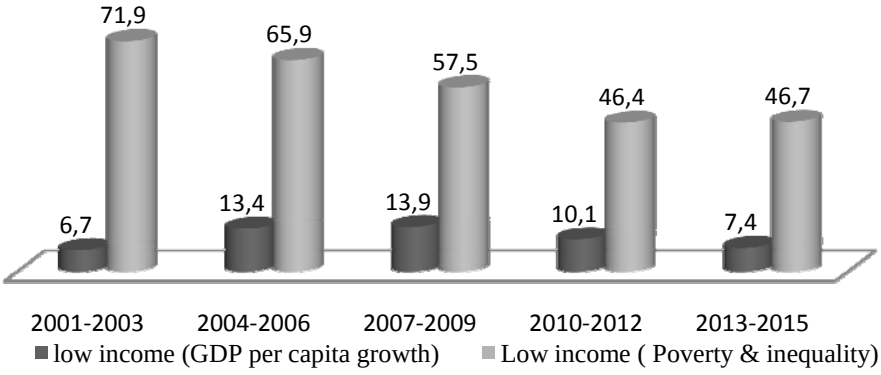

Figure 2: **Achievement of Inclusive Growth in Lower Developed Countries**

Figure 2 is also developed using data from table A5. It only focuses on low income countries to draw more elusive results. It can be seen that GDP per capita growth (PPP) was highest in the years 2007-2009 for lower developed income countries in fifteen years of sample. However, it has decreased to 7.4% in the recent years of 2013-2015. Considering, inclusive growth which is measured by adjoining poverty and income inequality has also substantially improved from year 2000 to year 2015 by points of nearly 25 percent which is a huge success for low income countries. However, it is still not sufficient for a country to progress by maintaining such figures of poverty and income inequality i.e. as high as 46.7 percent in low income countries which requires serious policy implications.

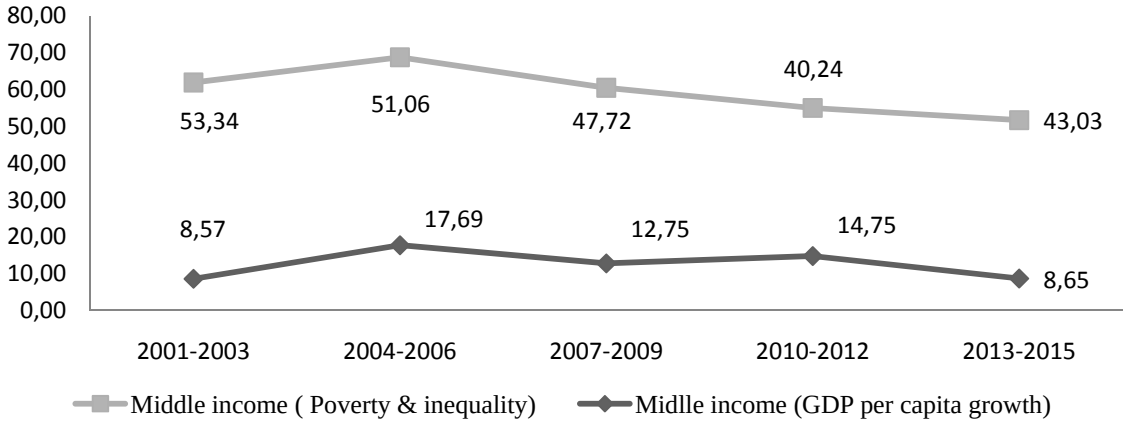

Figure 3. Achievement of Inclusive Growth in Middle Developed Countries

Figure 3 shows that GDP per capita growth (PPP) was highest in the years 2004-2006 for middle developed countries. Despite the high growth rates, the figure for poverty and inequalities was highest in the same years in 15 years of sample. This shows that in spite of growth in GDP per capita income, inclusive growth was in its shoddier forms. Nevertheless, GDP per capita growth (PPP) has decreased to 8.65%, which is still higher than lower income figures 7.4% in the recent years of 2013-2015. Bearing in mind that inclusive growth is measured by poverty and income inequality, Inclusive growth has substantially improved from 2000 to 2015 by points of nearly 10 percent. It is important to note that for low income countries the points was 25 percent points from the year 2000 to year 2015, which is huge success for LDCs. Nonetheless, it is not sufficient for a country to progress; poverty and income inequality are as high as 46.7 percent in low income countries (see figure 1) and 43.3 percent in middle income countries (2013-2015), which requires a serious policy implications for Middle income countries and lower income countries both. The changing patterns of determinants of inclusive growth in different income groups are also accommodating in achieving inclusive growth. The study has following objectives considering the urgent need for inclusive growth in lower developed;

a) To explore determinants of inclusive growth in two income groups of selected Asia and compares the inherent reasons that led to inclusive development.

b) To examine the conditional (interaction term) and unconditional (without interaction term) role of institutions and growth acceleration jointly.

c) Design policy implication for LDCs to reach at the standard of inclusive growth of MDCs.

Literature review

A study by Aoyagi (2015) desists that fiscal redistribution, monetary policy, structural reforms for trade, decline in unemployment are exigent determinants of inclusive growth. The author has analyzed thirty one Asian countries for twenty years of sampling panel data. However, the data set of countries has overlooked Pakistan, India and China which are rapidly emerging Asian economies. Moreover, the econometric results also showed low value of R square (40 percent variations); which calls for inclusion of more variable such as role of institutions, technological change or structural changes.

A. Aribah et al. (2016) forecasts using VECM & impulse response function that how each variable may contribute towards inclusive growth. The study is novel addition to literature. However, the idea could be improved if comparisons are carried out among different income data sets of Asia to draw appropriate policies.

Akbar & Chaudhry (2011) have utilized the data from 1970 to 2011 for the case of Pakistan. They have framed different weighted indexes based on the criteria of ADB (Asian Development Bank). The results show that curtailing poverty will enrich the welfare of human beings. It is constitutive that masses must be heard and they have a say in decision/ policy makings. The study establishes that employment generation, development of infrastructure, poverty reduction, income inequality , gender equity, education, sanitation and social protection have hardly any significant progress towards inclusive growth (1970-90). In the next era 1990-2011, the performance of these variables was even poorer and a total of merely 2.3 scores were achieved out of 10. Besides, the comparisons of democratic (2.9) and dictatorship (2.65) regimes show that nearly both of the types of governments performed aforementioned. This ruled out the general acumen that development occurred more in dictatorship regime. The paper contributes a great deal to literature. However, it has scorned the role of institutions; which play a significant role in development of any countries. Last but not the least; the authors have not applied any sound econometric modeling to determine the significance of these variables.

Cashin (2013) looks into the macro-economic stability, human capital, role of globalization, FDI, trade openness, financial deepening, technological change and structural changes are the productive tools to achieve inclusive growth. he R-square is highest when infrastructure quality along with Education, trade openness, credit to GDP, Corruption, Investment, inflation and GDP volatility is employed in the model. However, the author has over passed the role of gender inequality, institutions, entitlements, ensuring capabilities, government expenditures for social welfare, health quality which determining inclusive growth. The mentioned variables serve as important determinant to inclusive growth. Moreover, the author has not stated any diagnostic tests for panel estimations.

Dablis-Norris (2015) desists that inequalities not only matters for growth and it's sustainability but also income distribution itself affects growth. The study employs a very simple panel model of within country variations. The author looks for the relationships to trade, technology, domestic financial market, female mortality, government spending, labor flexibility and education as independent variables against an inequality measure. However, the R square is less than 40 percent for all the measures of inequality. Moreover, no diagnostic tests have been carried out to check stationary of data. Despite of low R square, the variables shows highly significant which makes results doubtful. Lastly, the author has completely disregarded the role of institutions, gender inequality, investments and health quality in his analysis. By improving the model, the explanatory power of the model (R-square) could also be improved.

Habito (2009) classifies the key determinants that have affect on the observed variation in growth/inclusive growth for Asian countries. The prominent factors are sectoral composition of

economy, their growth, public investments and quality of governance that leads to inclusive growth. The author has endowed PEG (poverty elasticity of growth) for Asian countries. Furthermore, simple regression and multiple regression models are used to look for determinants of inclusive growth. There is a need to look for the role of institutions and how these mentioned determinants shift from low income countries to upper income countries.

Nabi (2008) has simply compared six social indicators including infant mortality rate, less than five years of age mortality rate, total fertility rate, primary school enrollment, access to potable water and access to improved sanitization to look at inclusive growth in Pakistan. He also added savings and investment rate, efficiency of public expenditure, public private partnership, efficiency of public expenditure and revenue collection i.e. tax collection as some of the other measures to see inclusive growth in Pakistan. However, no study from above has addressed all facets of inclusive growth using established scientific method. A poor fiscal and monetary policy, instability of major economic variables, depressed human capital, lack of innovations and weak policies are a major setback to inclusive growth or the real development in Asian countries. It must be understood that high GDP growth can be a necessary condition but not a sufficient condition for the socioeconomic development of any country.

Zhuang (2008) broached policies for reducing inequalities and for acquiring inclusive growth employing the sample from Asian countries. The author mentions five general causes of inequalities that include economic liberations, institutional rigidities & increase role of market activities, resource allocations and economic reforms. Other considerations may implicate religious background, parental education, family systems, gender inequalities and location where a person resides. Withal, the paper lacks any scientific methodology to test determinants of inequalities and how the growth has been achieved. No empirical analysis has been carried out in testing the success of this theoretical model.

Zulfiqar et al. (2016) looks at the role of financial inclusion and it implications for inclusive growth in Pakistan. The study using Probit estimation technique suggests that Pakistan lags far behind the other countries. Another paper Zulfiqar et al. (2017) also suggests similar findings on Pakistan in terms of convergence phenomenon. Both papers are good addition to literature. However, there appears to be link between growth acceleration and institutions which needs to be explored and studies have ignored as this was the not the very objectives of the study as well.

Methodology

A composite variable for inclusive growth (IG) is devised by taking sum of Poverty headcount count ratio (%) and Gini index (1-100) i.e following of Kunal Sen (2014). Using inclusive growth, determinants of poverty can be extracted from following the model of Kunal Sen (2014) which is;

$$INC_{it} = A_1 + A_2 AG_{it} + A_3 MG_{it} + A_4 AG_{it} * INST_{it} + A_5 MG_{it} * INST_{it} + A_6 INST_{it} + A_7 Z_{it} + e_{it} \quad \ldots (1)$$

In the above equation 1, the author attributes AG to growth acceleration, MG to growth maintenance, INST to institutions (The Umbrella of Institutions comprises of six diverse types of Institutions; control of Corruption, rule of law and order, government effectiveness, Political stability & absence of violence/terrorism, voice and accountability and regulatory quality), AG*INST and GM*INST are two instrumental variables and Z represents the controlling variables. The growth maintenance is excluded since the type of data in this study is unbalanced panel and growth maintenance makes sense only if the data is balanced and continuous in nature. Equation 1 can be reshaped as equation 2 for the unbalanced panel data;

$$INC_{it} = \beta_0 + \beta_1 Y_{it} + \beta_2 AG_{it} + \beta_3 + \beta_4 AG_{it} * INST_{it} + \beta_5 INST_{it} + \beta_6 V_{it} + e_{it} \ldots (2)$$

Here, "V" in equation 2 is betoken for controlling variables that are diverse from Kunal Sen (2014) in juxtaposition with health, education, GDP, growth acceleration, institutions. Interaction terms are used when you are considerate about looking at the relationship between two or more than two variables. It is used to show a situation when simultaneous two variables influence any dependent variable and not alone. Thus suppose that if there are two variable, let "x_1" and "x_2" which depends on third variable "Y", then an additive model will be;

$$Y = \alpha + \beta_1 x_1 + \beta_2 x_2 + error \ldots (3)$$

In contrast to this;

$$Y = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3(x_1 \times x_2) + error \ldots . (4)$$

The equation 4 depicts a model with interaction term between x_1 and x_2. Error is the difference between actual Y and predicted Y. Equation 4 is followed individually for two datasets to delve comparisons among middle income and lower income countries. The model for comparisons of Middle developed Countries i.e. MDCs and Lower developed countries LDCs thus shaped into;

$$INC_{it} = \beta_0 + \beta_1 Y_{it} + \beta_2 AG_{it} + \beta_3 AG{*}INST_{it} + \beta_4 INST_{it} + \beta_5 LITT_{it} + \beta_6 HQ_{it} + e_{it} \ldots (5)$$

$$INC_{it} = \beta_0 + \beta_1 Y_{it} + \beta_2 AG_{it} + \beta_3 AG{*}INST_{it} + \beta_4 INST_{it} + \beta_5 LITT_{it} + \beta_6 HQ_{it} + e_{it} \ldots (6)$$

To look for impact of each institution separately (for low income and middle income Asian countries) on inclusive growth, equations 5 and 6 can be reshaped into equations 7 and 8 as following;

$$INC_{it} = \beta_0 + \beta_1 Y_{it} + \beta_2 AG_{it} + \beta_3 AG{*}_{it} + \beta_4 REG_{it} + \beta_3 AG{*}REG_{it} + \beta_4 VA_{it} + \beta_3 AG{*}VA_{it} + \beta_4 Corr_{it} + \beta_3 AG{*}Corr_{it} + \beta_5 LITT_{it} + \beta_6 HQ_{it} + e_{it} \ldots (7)$$

$$INC_{it} = \beta_0 + \beta_1 Y_{it} + \beta_2 AG_{it} + \beta_3 AG{*}_{it} + \beta_4 Reg_{it} + \beta_3 AG{*}reg_{it} + \beta_4 VA_{it} + \beta_3 AG{*}VA_{it} + \beta_4 Corr_{it} + \beta_3 AG{*}Corr_{it} + \beta_5 LITT_{it} + \beta_6 HQ_{it} + e_{it} \ldots (8)$$

Where, i= no of countries, INC = sum of Gini index and poverty (proxy to inclusive growth), AG = acceleration of growth phase; dummy variable (1= growth accelerated and 0 otherwise), INST = measure of institution quality (Corr = control of corruption, REG= regulation & VA= voice accountability) , Y= real per capita GDP, LITT= education, HQ= health quality & e= error term. To conduct empirical analysis on LDCs & MDCs, data from years 2000-2015 in the form of unbalanced panel data is used. Data has been gathered from World development Indictors (2015), Worldwide governance Indicators, International Financial Statistics (IFS) and International Country Risk Guides (ICRG).

Results

This section collates determinants of inclusive growth and the role of umbrella Institutions on inclusive growth, using two different data sets (MDCs & LDCs). The Umbrella of Institutions comprises of six diverse types of Institutions; control of Corruption, rule of law and order, government effectiveness, Political stability & absence of violence/terrorism, voice and accountability and regulatory quality. Auxiliary controlling variables included in the two models are education, Y (GDP per capita) and health quality. Furthermore, this section embraces charismatic results from interactions of umbrella of institutions and growth acceleration.

Table 2. Summary Statistics of Variables

	Middle Developed				Low Developed			
Variables	**Obs**	**Mean**	**Min**	**Max**	**Obs**	**Mean**	**Max**	**Min**
IG	57	44.23	21.25	75	60	54.32	94.33	29.57
Ins	120	-0.46	-1.44	0.55	120	-0.70	0.55	-1.5

Middle Developed					Low Developed			
Variables	**Obs**	**Mean**	**Min**	**Max**	**Obs**	**Mean**	**Max**	**Min**
GA*Ins	120	-0.30	-1.43	0.55	120	-0.50	0.55	-1.49
HQ	112	419.24	86.21	1414.5	113	145.93	344.41	28.93
VA	120	-0.60	-1.68	0.51	120	-0.84	0.17	-1.56
Pol	120	-0.68	-2.12	0.75	120	-0.78	1.31	-2.81
Y	120	11331.16	2521.34	24459.78	120	3438.17	7456.31	1185.60
GA* Corr	120	-0.29	-1.13	0.47	120	-0.52	1.27	-1.48
Edu	120	105.85	94.41	129.45	120	102.53	134.53	70.43
Regs	120	-0.27	-1.73	0.84	120	-0.61	0.16	-1.31
Corr	120	-0.44	-1.13	0.48	120	-0.71	1.27	-1.49
GA	120	0.63	0	1	120	0.69	1	0
GA*VA	120	-0.40	-1.68	0.45	120	-0.61	0.15	-1.56
GA*Reg	120	-0.19	-1.73	0.83	120	-0.44	0	-1.30
GA*Pol	120	-0.43	-2.11	0.45	120	-0.54	1.30	-2.81

Table 2 provides a summary of empirical statistics for variables. Table 2 provides sterling comparisons of both data sets (LDCs & MDCs) for each variable that are included in model. IG represents inclusive growth and it is acquired by summing poverty and inequality. Note that higher values provide negative impression, whereas low values of determinants of IG are preferable i.e. inequality and poverty. Lower Developed Countries have maximum value of 95, whereas Middle Developed Countries have maximum value of 75 for inclusive growth. Similarly the minimum value of Lower developed countries for IG is 30, whereas for middle developed has its value of only 21. There is a whopping difference of ten points in Lower developed and higher developed inclusive growth variable when mean is considered. The data thus depicts obvious division among two different levels of economic growth, ranking set of middle developed higher as compared to Lower developed countries in respect of inclusive growth. Cluster/umbrella of institutions are also slightly better in case of middle developed than lower developed countries, as their mean difference is only 0.3. There exists a prodigious difference between health qualities of both sets of data by a mean difference of 274 points. Similarly, voice accountability, political stability, regulatory quality and control of corruption are also surpassing in Middle Developed Countries to Lower developed countries. Education variable also differs by three points from Lower developed countries, proving that education is also better in middle developed countries. GDP per capita (PPP) is also exceedingly better than Lower Developed Countries, for example mean in middle developed countries is 11331 USD and only 3436 USD in LDCs. These per capita incomes are based upon purchasing power parity, as taken from data set of World Bank (online source). It may not be considered as general level of per capita income. The only variable that performs better in LDCS than MDCs is growth acceleration which proves that high GDP growth is observed more in Lower Developed Countries. This is a good omen which confirms a good sampling of countries. The idea supports convergence of LDCs and MDCs. For details see Zulfiqar et al. (2017). However, it is important to mention here that change is not very significant here in the case of inclusive growth, which is very important to improve welfare of the society. This is particularly acumen that MDCs have more sustained GDP growth rates as compared to LDCs with weak policies.

The results of Hausman Test as given in table 3 depicts that fixed effect Model is suitable for both in MDCs & LDCs. The R-square (within) shows that model is very good fit in case of Middle

developed countries i.e. capturing 80.7 percent variation. Whereas, it is a good fit for LDCs capturing variation of 79.5 percent.

Table 3. Regression Output Using Umbrella of Institutions

Model Comparisons	Middle Developed	Low Developed
Hausman test	Prob>chi2 = 0.0000	Prob>chi2 = 0.0000
R square (within)	0.807	0.7951
R square (between)	0.304	0.0080
R square (overall)	0.446	0.194
No of obs.	56	60
No of groups	8	8
Probab of F test	0.000	0.000
Corr(∪_i,xb)	-0.517	-0.5490
Rho	0.86979	-0.8733
Prob >F	0.000	0.000

The results in above table 3 portray that models (LDC's and MDC's) is a good fit as probability is less than 5% significance level. This F test is basically used to see if all the coefficients in the model are different from 0. There are 56 rows in MDCs against 8 entitles and 60 rows against 8 entitles in LDCs. Corr (∪_i,xb) shows if the errors (u_i) are correlated within regressor in the fixed effect model. Lastly rho is interclass co-relation. The table shows that 86.9 % of the variance and 87.3% of the variance due to differences across panel in MDCs and LDCs respectively. Rho is known as interclass correlation. It shows the amount of variance which is due to difference across panel. The formula, rho= $\frac{(sigma_u)^2}{(sigma_u)^2+(sigma_e)^2}$, where sigma_u is standard deviation of residuals within groups u_i and sigma_u is the standard deviation of residuals (overall error term) e_i.

Table 4. Comparisons of MDCs & LDCs Using Umbrella Institutions

Dependent Variable : Ig (Pov+ Gini)	Middle Developed			Low Developed		
	Robust Coefficient	Significance		Robust Coefficient	Significance	
		T value	P value		T value	P value
HQ	-0.025	-5.13	0.001	-0.173	-4.3	0.004
Edu	0.581	8.89	0	-0.129	-0.17	0.867
Y	0.003	7.75	0	-0.001	-0.39	0.707
Ga	-0.885	-0.33	0.75	8.510	2.46	0.044
Reg	11.322	1.13	0.296	-8.772	-0.97	0.366
Ga*Reg	12.288	3.41	0.011	5.904	0.75	0.48
Va	-14.920	-2.57	0.037	-14.302	-0.82	0.441
Ga*Va	13.95	2.09	0.075	-2.204	-0.38	0.712
Corr	-34.335	-2.86	0.024	-13.913	-2.22	0.062
Ga* Corr	16.539	1.86	0.106	9.102	2.83	0.026
Pol	4.6221	2.29	0.055	-2.179	-0.69	0.512
Ga*Pol	6.468	2.44	0.045	-1.080	-0.32	0.761
_Cons	142.291	12.82	0	90.664	1.07	0.32

Source: Estimated by the author by using data from WDI.

Table 4 shows the robust estimators to control hetroskedascity. T-stat reported in above tables tests the hypothesis H_0= each coefficient is different from 0. To discard this, the t-value must be greater than 1.96 (95% confidence). If this is the case then you may terminate that independent variable has a significant impact IG (pov+Gini). P values are reported against each T value in the above table. The Two-tail p-values tests the hypothesis; H_o= each coefficient is different from 0. To reject this, the p-value must be less than 0.05 or 0.10. If this is the case then you may conclude that independent variable has a significant impact IG (pov+Gini).

In the case of middle developed countries, all independent variables except Growth acceleration (GA) & regulatory quality (Reg) are significant. It can be concluded that independent variables Health quality (HQ), Education (Edu), GDP per capita(Y), Voice accountability (VA), corruption (Corr) and Political stability (Pol) has a significant impact IG (poverty +Gini). The results are comparable to R. Anand & J. Peris (2013), who posits that education has a significant role on growth in inclusive growth. Growth acceleration (GA) and Regulatory quality (Reg) has insignificant impact on IG. However, with the use of interaction terms for GA and Reg along with other institutions; denoted by GA*Reg, GA*Corr, GA*VA and GA*pol, a significant impact on IG was found. This reflects that Growth acceleration helps to achieve inclusive growth, once institutions are also present in system. Hence, merely accelerated growth figure doesn't fuel Inclusive growth.

In the case of LDCs, all independent variables except Health quality (HQ), Growth acceleration (GA) and corruption (Corr) has insignificant impacts on IG. All institution except corruption has insignificant impact on Inclusive growth. Fascinating comparisons can be drawn from the results above. Nearly all independent variables except Growth acceleration and regulatory quality (Reg) alone lead to inclusive growth in middle developed countries. However, since there are weak institutions in Lower developed countries, hence they play an insignificant contribution towards IG.

The results from Hausman Test in table 5 show that fixed effect Model was found more suitable for both in Middle Developed and Lower Developed Countries. The fixed-effects model controls for all time-invariant differences between the cross-sectional units. This makes the estimated coefficients of the fixed-effects models unbiased because of omitted time-invariant characteristic such as dummy variables (GA in this case).

Table 5. Regression Output Using Cluster of Institutions

Model Comparisons	**Middle Developed**	**Low Developed**
Hausman test	Prob>chi2 = 0.0000	Prob>chi2 = 0.0000
R square (within)	0.540	0.755
R square (between)	0.139	0.028
R square (overall)	0.276	0.245
No of obs.	56	60
No of groups	8	8
Corr(∪_i,xb)	-0.228	-0.4766
Rho	0.7822	0.827
Prob >F	0.000	0.000

The model is good fit as probability is less than 5% significance level. This test is basically used to see if all the coefficients in the model are different from 0. There are 56 rows in Middle developed countries against 8 entitles and 60 rows against 8 entitles in LDCs. Corr(∪_i,xb) shows if the errors (u_i) are correlated within regressor in the fixed effect model. Lastly rho is interclass co-

relation. Table 5 shows that 78.2 % of the variance and 82.7% of the variance due to differences across panel in MDCs and LDCs respectively.

Table 6. Comparisons of MDCs & LDCs using Cluster of Institutions

Dependent Variables : IG (POV+GINI)	Middle Developed			Low Developed		
	Robust Coefficients	Significance		Robust Coefficients	Significance	
		T Value	P value		T Value	P value
HQ	0.021	2.28	0.057	-0.191	-3.29	0.013
Edu	-0.624	-3.83	0.006	-0.339	-0.61	0.562
Y	-0.002	-5.1	0.001	-0.008	-0.15	0.884
GA	-2.161	-1.21	0.265	7.850	1.71	0.11
Ins	12.052	1.36	0.215	0.853	0.08	0.939
GA*Ins	-12.842	-1.97	0.104	9.728	1.99	0.105
_cons	134.212	6.89	0	120.147	2.87	0.024

Table 6 shows the robust estimators to control hetroskedascity (See appendices for diagnostic tests). T-stat reported in above tables tests the hypothesis H_0= each coefficient is different from 0. P values are reported against each T value in the above table. The Two-tail p-values tests the hypothesis; H_o= each coefficient is different from 0. In case of MDCs, Health quality (HQ), Education (Edu), GDP per capita (Y) has a significant impact on Inclusive growth. The results are comparable by Mathew (2013), which advocates refocusing economic policies on GDP per capita may yield inclusive growth. Growth acceleration and Institutions alone doesn't have a significant impact on inclusive growth. However, if growth acceleration occurs in presence of institutions, it leads to inclusive growth in Middle developed countries. Except health quality, no independent variable has significant impact on inclusive growth in Lower developed countries. This shows why there is low inclusive growth in developing world. Health quality leads to inclusive growth. It is crucial to pinpoint here that that the results of the paper do not reflect that other variables are unimportant and should be overlooked, but the results suggests that there is a need to pay special attention in improving the poor performance of their variables, which would lead to even richer results in embracing inclusive growth. However, unlike middle developed countries, due to poor quality of education, inclusive growth remains unaffected by education. Weak institutions also do not contribute towards inclusive growth in LDCs. This clearly shows that Lower developed countries need to shift their growth policies and follow middle developed Asian countries as a role model.

Conclusions & Policy Framework

The empirical evidences indicate that all independent variables besides, growth acceleration & regulatory quality have a significant impacts on Inclusive growth in MDCs. Significant results were acquired by employing interaction terms for Growth acceleration and regulatory quality along with other institutions. This result by employing instruments embellishes that growth acceleration succors in effectuating inclusive growth only when institutions are also present in the system. In the case of Lower developed countries, all institutions apart from corruption had insignificant impact on Inclusive growth. This reflects that these variables are very poor in LDCs. It is the very reason that although economic growth is occurring, yet LDCs lack behind the MDCS in the realm of inclusive growth. Well-nigh all independent variables excluding Growth acceleration and regulatory quality lead to inclusive growth in middle developed countries. Nevertheless, institutions depicted insignificant contribution towards IG since there are weak institutions in Lower developed countries.

Using cluster of institutions, the subsequent denouements can be made. In case of MDCs, Health quality, Education, GDP per capita has a significant impact on Inclusive growth. Whereas, inclusive growth in MDCs & LDCs can only occur in case if growth acceleration takes place in the existence of strong institutions. Apart from health quality, no independent variable had a significant impact on inclusive growth in Lower developed countries. Nonetheless, unlike middle developed countries, inclusive growth remains unaffected by education due to atrocious education in Lower developed countries. Weak institutions also did not contribute towards inclusive growth in LDCs it is no wonder that millions of children are drop out from schools. There is need to implement rules along with its implement and quality of them. This results clearly depicts that Lower developed countries need to shift their policies in order to achieve inclusive growth. Economic growth is only benefiting bourgeoisie class and proletariat still suffers in LDCs; thus adding to income inequalities. There is need to dwell into the depths of inclusive which will ensure welfare of masses. Dismally, bourgeoisie continue to enjoy better education facilities, health quality, and better standard of living. Following policy framework can be enlisted to achieve inclusive growth in LDCs (figure 4);

i. It is necessary condition of achieve inclusive growth in Asia, that growth is accelerated i.e. GDP per capita income growth is increasing each year. However, this is not the sufficient condition to achieve inclusive growth.

ii. The sufficient condition to achieve inclusive growth lies in the umbrella of institutions, trade openness, education & health quality. However, it must be noted that Long run policies must be formulated to achieve inclusive growth in MDCs & LDCs in Asian countries. It must also be noted here that all determinants of inclusive growth will only be helpful, when a country is growing each year.

iii. Lastly, it is important to note that, the most immediate results to achieve inclusive growth were shown by education, GDP per capita income & political stability i.e. within two years of time span.

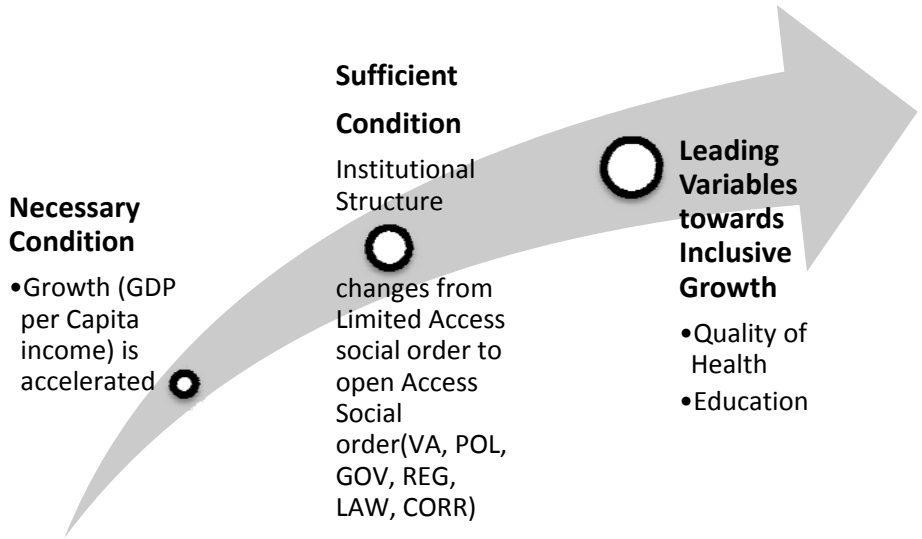

Figure 4. Policy Framework

Thus, policies must be designed in a way that focuses must be laid in improving Health quality, regulatory quality, education, people must be heard, corruption must be cut back and there must be political stability in country. However, it must be not be forgotten that the impact of institutions in achieving inclusive growth, will only be evident when growth is accelerating i.e. growth in GDP per capita is increasing.

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APPENDIX

A. Diagnostic Tests Comparisons through FEM model using umbrella of four Institutions

To observe time fixed effects dummies are required or not, testpar command in Stata is used. It is a joint test inbuilt in Stata to see if the dummies for the years (2000-2015) are equal to 0. If such is a case, then it can be concluded that no fixed effects are needed.

Table A1. Test for Dummy Inclusion

Middle Developed			**Low developed**		
1	2001.years	0	-1	2001.years	0
2	2002.years	0	-2	2002.years	0
3	2003.years	0	-3	2003.years	0
4	2004.years	0	-4	2004.years	0
5	2005.years	0	-5	2005.years	0
6	2006.years	0	-6	2006.years	0
7	2007.years	0	-7	2007.years	0
8	2008.years	0	-8	2008.years	0
9	2009.years	0	-9	2009.years	0
10	2010.years	0	-10	2010.years	0
11	2011.years	0	-11	2011.years	0
12	2012.years	0	-12	2012.years	0
13	2013.years	0	-13	2013.years	0
F(13, 23) =		**1.69**	**F(13, 27) =**		**1.19**
Prob > F =		**0.130**	**Prob > F =**		**0.3365**

The table A2 shows that prob>F is greater than 5 percent IG (Pov+ Gini) significance level for both middle developed and lower developed countries. Therefore, I fail to reject the null hypothesis; H_0=co-efficient for all years are jointly equal to zero. Concluding no time fixed effects is needed in this case. To check for heteroskedasticity in fixed effect model, modified wald test for GroupWise hetroskedascity in fixed effect regression model was employed. The null hypothesis of this test is H_0=homoskedascity (or constant variance). Following are results.

Table A2. Test for Hetroskedascity

Middle Developed		**Low developed**	
H0: sigma(i)^2 = sigma^2 for all i		H0: sigma(i)^2 = sigma^2 for all i	
Chi2 (8)	355	Chi2 (8)	102.59
Prob>chi2	0.000	Prob>chi2	0.000

The table A2 shows that Prob>chi2 is less than 5 percent significance level for both middle developed and lower developed countries. Therefore alternate hypothesis cannot be rejected and safely concluded that there is hetroskedascity. To correct estimators with hetroskedascity problem, hetroskedascity-robust standard errors are used. This is also known as Huber/White or sandwich estimators.

Breusch-Pagan Lagrange multiplier (LM) tests the independence; this test is used to check cross-sectional dependence/contemporaneous correlation. According to Baltagi (2000), cross-sectional dependence is a setback in macro panels with long time (20 to 30 years). As the study employs macro panel data so there is cross-sectional dependence/ contemporaneous correlation. Similarly, serial correlation tests are applied to macro-panels with long time series over 20 to 30 years and it is not a problem in short/ micro panes. Serial correlation causes the S.E of the coefficients to be lesser than they are and you get a high R-square value.

To see if the time fixed effects are required, test is carried out in table A3. It is a joint test in-built in Stata to see if the dummies for the years (2000-2015) are equal to 0. If such is a case, then it can be concluded that no fixed effects are needed.

Table A3. Test for Dummy

Middle Developed			**Low developed**		
1	2001.years	0	1	2001.years	0
2	2002.years	0	2	2002.years	0
3	2003.years	0	3	2003.years	0
4	2004.years	0	4	2004.years	0
5	2005.years	0	5	2005.years	0
6	2006.years	0	6	2006.years	0
7	2007.years	0	7	2007.years	0
8	2008.years	0	8	2008.years	0
9	2009.years	0	9	2009.years	0
10	2010.years	0	10	2010.years	0
11	2011.years	0	11	2011.years	0
12	2012.years	0	12	2012.years	0
13	2013.years	0	13	2013.years	0
F(13, 29) =		**1.08**	**F(13, 33) =**		**1.51**
Prob > F =		**0.409**	**Prob > F =**		**0.165**

The table A4 shows that prob>F is greater than 5 percent significance level in both MDCs and LDCs. Therefore, null hypothesis cannot be rejected; H_0=co-efficient for all years are jointly equal to zero. Concluding no time fixed effects are needed in this case. To check for heteroskedasticity in fixed effect model, modified wald test for GroupWise hetroskedascity in fixed effect regression model is used. The null hypothesis of this test is H_0=homoskedascity (or constant variance). Following are results;

Table A4. Test for Hetroskedascity

Middle Developed		**Low developed**	
H0: sigma(i)^2 = sigma^2 for all i		H0: sigma(i)^2 = sigma^2 for all i	
Chi2 (8)	8.13	Chi2 (8)	419.92
Prob>chi2	0.000	Prob>chi2	0.000

The table A4 shows that Prob>chi2 is less than 5 percent significance level in both MDCs and LDCs. Therefore alternate hypothesis cannot be rejected and it was safely concluded that there

is hetroskedascity. To correct estimators with hetroskedascity problem, hetroskedascity-robust standard errorsare used. This is also known as Huber/White or sandwich estimators.

Breusch-Pagan Lagrange multiplier (LM) test of independence is used to check cross-sectional dependence/contemporaneous correlation. According to Baltagi, cross-sectional dependence is a setback in macro panels with long time (20 to 30 years). Similarly, serial correlation tests are applied to macro-panels with long time series over 20 to 30 years and it is not a problem in short/ micro panes. Serial correlation causes the S.E of the coefficients to be lesser than they are and you get a high R-square value.

Table A5. Comparisons of Middle Developed & Lower Developed Countries

Years	low income (GDP per capita growth)	Middle income (GDP per capita growth)	Low income (Poverty & income inequality)	Middle income (Poverty & income inequality)
2001-2003	6.66	8.57	71.85	53.34
2004-2006	13.36	17.69	65.93	51.06
2007-2009	13.88	12.75	57.46	47.72
2010-2012	10.06	14.75	46.42	40.24
2013-2015	7.39	8.65	46.70	43.03